



Alabama Department of Environmental Management
adem.alabama.gov

1400 Coliseum Blvd. 36110-2400 ■ Post Office Box 301463
Montgomery, Alabama 36130-1463
(334) 271-7700 ■ FAX (334) 271-7950

DECEMBER 1, 2016

MR ROBRECHT HIMPE
PRESIDENT
AM/NS CALVERT LLC
1 AM/NS WAY
CALVERT AL 36513

**RE: REVISED DRAFT PERMIT
NPDES PERMIT NUMBER AL0080233**

Dear Mr. Himpe:

Transmitted herein is a revised draft of the referenced permit.

We would appreciate your comments on the permit within **30 days** of the date of this letter. Please direct any comments of a technical or administrative nature to the undersigned.

By copy of this letter and the draft permit, we are also requesting comments within the same time frame from EPA.

Our records indicate that you are currently utilizing the Department's web-based electronic environmental (E2) reporting system for submittal of discharge monitoring reports (DMRs). Your E2 DMRs will automatically update on the effective date of this permit, if issued.

The Alabama Department of Environmental Management encourages you to voluntarily consider pollution prevention practices and alternatives at your facility. Pollution Prevention may assist you in complying with effluent limitations, and possibly reduce or eliminate monitoring requirements.

If you have questions regarding this permit or monitoring requirements, please contact Latoya Hall by e-mail at lahall@adem.alabama.gov or by phone at (334) 394-4366.

Sincerely,


Scott Ramsey, Chief
Industrial Section
Industrial/Municipal Branch
Water Division

Enclosure: Revised Draft Permit

pc via website: Montgomery Field Office
EPA Region IV
U.S. Fish & Wildlife Service
AL Historical Commission
Advisory Council on Historic Preservation
Department of Conservation and Natural Resources

Birmingham Branch
110 Vulcan Road
Birmingham, AL 35209-4702
(205) 942-6168
(205) 941-1603 (FAX)

Decatur Branch
2715 Sandlin Road, S.W.
Decatur, AL 35603-1333
(256) 353-1713
(256) 340-9359 (FAX)



Mobile Branch
2204 Perimeter Road
Mobile, AL 36615-1131
(251) 450-3400
(251) 479-2593 (FAX)

Mobile-Coastal
3664 Dauphin Street, Suite B
Mobile, AL 36608
(251) 304-1176
(251) 304-1189 (FAX)



NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT

PERMITTEE: AM/NS CALVERT LLC

FACILITY LOCATION: 1 THYSSENKRUPP DRIVE
CALVERT, AL 36513

PERMIT NUMBER: AL0080233

RECEIVING WATERS: DSN001: TOMBIGBEE RIVER
DSN002 & 003: SHEPPARD LAKE
DSN004: UNNAMED TRIBUTARY TO SHEPPARD LAKE
DSN007: BARROW CREEK
DSN009 & 010: TOMBIGBEE RIVER

In accordance with and subject to the provisions of the Federal Water Pollution Control Act, as amended, 33 U.S.C. §§1251-1388 (the "FWPCA"), the Alabama Water Pollution Control Act, as amended, Code of Alabama 1975, §§ 22-22-1 to 22-22-14 (the "AWPCA"), the Alabama Environmental Management Act, as amended, Code of Alabama 1975, §§22-22A-1 to 22-22A-17, and rules and regulations adopted thereunder, and subject further to the terms and conditions set forth in this permit, the Permittee is hereby authorized to discharge into the above-named receiving waters.

ISSUANCE DATE: JULY 30, 2015

EFFECTIVE DATE: AUGUST 1, 2015

EXPIRATION DATE: JULY 31, 2020

MODIFICATION ISSUED DATE:

MODIFICATION EFFECTIVE DATE:

Draft

**INDUSTRIAL SECTION
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT**

TABLE OF CONTENTS

PART I	DISCHARGE LIMITATIONS, CONDITIONS, AND REQUIREMENTS.....	1
A.	DISCHARGE LIMITATIONS AND MONITORING REQUIREMENTS	1
B.	DISCHARGE MONITORING AND RECORD KEEPING REQUIREMENTS	15
1.	Representative Sampling	15
2.	Test Procedures	15
3.	Recording of Results	15
4.	Records Retention and Production.....	15
5.	Monitoring Equipment and Instrumentation.....	16
C.	DISCHARGE REPORTING REQUIREMENTS	16
1.	Reporting of Monitoring Requirements	16
1.	Noncompliance Notification.....	18
D.	OTHER REPORTING AND NOTIFICATION REQUIREMENTS	18
1.	Anticipated Noncompliance	18
2.	Termination of Discharge	19
3.	Updating Information	19
4.	Duty to Provide Information.....	19
5.	Cooling Water and Boiler Water Additives	19
6.	Permit Issued Based On Estimated Characteristics.....	19
E.	SCHEDULE OF COMPLIANCE.....	20
PART II	OTHER REQUIREMENTS, RESPONSIBILITIES, AND DUTIES	21
A.	OPERATIONAL AND MANAGEMENT REQUIREMENTS	21
1.	Facilities Operation and Maintenance.....	21
2.	Best Management Practices.....	21
3.	Spill Prevention, Control, and Management	21
B.	OTHER RESPONSIBILITIES	21
1.	Duty to Mitigate Adverse Impacts.....	21
2.	Right of Entry and Inspection.....	21
C.	BYPASS AND UPSET	21
1.	Bypass	21
2.	Upset	22
D.	DUTY TO COMPLY WITH PERMIT, RULES, AND STATUTES	22
1.	Duty to Comply	22
2.	Removed Substances	22
3.	Loss or Failure of Treatment Facilities.....	23
4.	Compliance with Statutes and Rules.....	23
E.	PERMIT TRANSFER, MODIFICATION, SUSPENSION, REVOCATION, AND REISSUANCE.....	23
1.	Duty to Reapply or Notify of Intent to Cease Discharge	23
2.	Change in Discharge.....	23
3.	Transfer of Permit.....	24
4.	Permit Modification and Revocation.....	24
5.	Permit Termination.....	25
6.	Permit Suspension	25
7.	Request for Permit Action Does Not Stay Any Permit Requirement.....	25
F.	COMPLIANCE WITH TOXIC POLLUTANT STANDARD OR PROHIBITION	25
G.	DISCHARGE OF WASTEWATER GENERATED BY OTHERS.....	25
PART III	OTHER PERMIT CONDITIONS.....	26
A.	CIVIL AND CRIMINAL LIABILITY	26
B.	OIL AND HAZARDOUS SUBSTANCE LIABILITY	26
C.	PROPERTY AND OTHER RIGHTS	26
D.	AVAILABILITY OF REPORTS.....	27
E.	EXPIRATION OF PERMITS FOR NEW OR INCREASED DISCHARGES	27
F.	COMPLIANCE WITH WATER QUALITY STANDARDS	27
G.	GROUNDWATER	27
H.	DEFINITIONS	27
I.	SEVERABILITY	30
PART IV	ADDITIONAL REQUIREMENTS, CONDITIONS, AND LIMITATIONS	31
A.	BEST MANAGEMENT PRACTICES (BMP) PLAN REQUIREMENTS	31
B.	STORMWATER FLOW MEASUREMENT AND SAMPLING REQUIREMENTS.....	32
C.	EFFLUENT TOXICITY LIMITATIONS AND BIOMONITORING REQUIREMENTS.....	33
D.	COOLING WATER INTAKE STRUCTURE (CWIS) REQUIREMENTS	36
E.	TOTAL TOXIC ORGANIC (TTO) REQUIREMENTS.....	36
F.	TOTAL TOXIC ORGANICS (TTO) LISTING (40 CFR 433).....	37

PART I DISCHARGE LIMITATIONS, CONDITIONS, AND REQUIREMENTS

A. DISCHARGE LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on the effective date of this permit and lasting through the expiration date of this permit, the permittee is authorized to discharge from the following point source(s) outfall(s), described more fully in the permittee's application:

DSN0011:Treated waste water from acid cleaning and nickel plating operations. 3/ 4/

Such discharge shall be limited and monitored by the permittee as specified below:

<u>EFFLUENT CHARACTERISTIC</u>	<u>DISCHARGE LIMITATIONS</u>			<u>MONITORING REQUIREMENTS 1/</u>				
	<u>Monthly Average</u>	<u>Daily Maximum</u>	<u>Daily Minimum</u>	<u>Monthly Average</u>	<u>Daily Maximum</u>	<u>Measurement Frequency 2/</u>	<u>Sample Type</u>	<u>Seasonal</u>
Temperature, Water Deg. Fahrenheit	-	-	-	REPORT F	115 F	Daily	Continuous	-
Oxygen, Dissolved (DO)	-	-	2.0 mg/l	REPORT mg/l	-	2X Monthly	Grab	-
pH	-	-	6.0 S.U.	-	9.0 S.U.	Daily	Grab	-
Solids, Total Suspended	-	-	-	31 mg/l	60 mg/l	Weekly	Composite	-
Oil & Grease	-	-	-	26 mg/l	52 mg/l	Weekly	Grab	-
Nitrogen, Ammonia Total (As N)	-	-	-	16 mg/l	24 mg/l	2X Monthly	Composite	-
Nitrogen, Kjeldahl Total (As N)	-	-	-	46 mg/l	69 mg/l	2X Monthly	Composite	April-October
Nitrite Plus Nitrate Total I Det. (As N)	-	-	-	REPORT mg/l	REPORT mg/l	2X Monthly	Composite	April-October

THE DISCHARGE SHALL HAVE NO SHEEN, AND THERE SHALL BE NO DISCHARGE OF VISIBLE OIL, FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

- 1/ Samples collected to comply with the monitoring requirements specified above shall be collected at the following location: At the nearest accessible location just prior to discharge and after final treatment. Unless otherwise specified, composite samples shall be time composite samples collected using automatic sampling equipment or a minimum of eight (8) equal volume grab samples collected over equal time intervals. All composite samples shall be collected for the total period of discharge not to exceed 24 hours.
- 2/ If only one sampling event occurs during a month, the sample result shall be reported on the discharge monitoring report as both the monthly average and daily maximum value for all parameters with a monthly average limitation.
- 3/ See Part IV.A for Best Management Practices (BMP) Plan Requirements.
- 4/ No user subject to the provisions of this subpart shall augment the use of process wastewater or otherwise dilute the wastewater as a partial or total substitute for adequate treatment to achieve compliance with this limitation.

During the period beginning on the effective date of this permit and lasting through the expiration date of this permit, the permittee is authorized to discharge from the following point source(s) outfall(s), described more fully in the permittee's application:

DSN0011 (continued): Treated waste water from acid cleaning and nickel plating operations. 3/ 5/

Such discharge shall be limited and monitored by the permittee as specified below:

<u>EFFLUENT CHARACTERISTIC</u>	<u>DISCHARGE LIMITATIONS</u>			<u>MONITORING REQUIREMENTS 1/</u>				
	<u>Monthly Average</u>	<u>Daily Maximum</u>	<u>Daily Minimum</u>	<u>Monthly Average REPORT</u> mg/l	<u>Daily Maximum REPORT</u> mg/l	<u>Measurement Frequency 2/</u>	<u>Sample Type</u>	<u>Seasonal</u>
Phosphorus, Total (As P)	-	-	-	REPORT mg/l	REPORT mg/l	2X Monthly	Composite	April-October
Cyanide, Total (As CN)	-	-	-	0.65 mg/l	1.2 mg/l	Weekly	Grab	-
Cadmium, Total (As Cd) 4/	-	-	-	0.07 mg/l	0.11 mg/l	Weekly	Composite	-
Chromium, Total (As Cr) 4/	-	-	-	1.71 mg/l	2.77 mg/l	Weekly	Composite	-
Copper, Total (As Cu) 4/	-	-	-	2.07 mg/l	3.38 mg/l	Weekly	Composite	-
Lead, Total (As Pb) 4/	-	-	-	0.43 mg/l	0.69 mg/l	Weekly	Composite	-
Nickel, Total (As Ni) 4/	-	-	-	2.38 mg/l	3.98 mg/l	Weekly	Composite	-
Silver, Total (As Ag) 4/	-	-	-	0.24 mg/l	0.43 mg/l	Weekly	Composite	-

THE DISCHARGE SHALL HAVE NO SHEEN, AND THERE SHALL BE NO DISCHARGE OF VISIBLE OIL, FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

- 1/ Samples collected to comply with the monitoring requirements specified above shall be collected at the following location: At the nearest accessible location just prior to discharge and after final treatment. Unless otherwise specified, composite samples shall be time composite samples collected using automatic sampling equipment or a minimum of eight (8) equal volume grab samples collected over equal time intervals. All composite samples shall be collected for the total period of discharge not to exceed 24 hours.
- 2/ If only one sampling event occurs during a month, the sample result shall be reported on the discharge monitoring report as both the monthly average and daily maximum value for all parameters with a monthly average limitation.
- 3/ See Part IV.A for Best Management Practices (BMP) Plan Requirements.
- 4/ For the purpose of demonstration of compliance with this parameter, "Total" and "Total Recoverable" shall be considered equivalent.
- 5/ The permittee shall not augment the use of process wastewater or otherwise dilute the wastewater as a partial or total substitute for adequate treatment to achieve compliance with these limitations.

During the period beginning on the effective date of this permit and lasting through the expiration date of this permit, the permittee is authorized to discharge from the following point source(s) outfall(s), described more fully in the permittee's application:

DSN0011 (continued):Treated waste water from acid cleaning and nickel plating operations. 3/ 6/

Such discharge shall be limited and monitored by the permittee as specified below:

<u>EFFLUENT CHARACTERISTIC</u>	<u>DISCHARGE LIMITATIONS</u>			<u>MONITORING REQUIREMENTS 1/</u>				
	<u>Monthly Average</u>	<u>Daily Maximum</u>	<u>Daily Minimum</u>	<u>Monthly Average</u>	<u>Daily Maximum</u>	<u>Measurement Frequency 2/</u>	<u>Sample Type</u>	<u>Seasonal</u>
Zinc, Total (As Zn) 4/	-	-	-	1.48 mg/l	2.61 mg/l	Weekly	Composite	-
Flow, In Conduit or Thru Treatment Plant	REPORT MGD	REPORT MGD	-	-	-	Daily	Totalizer	-
Mercury Total Recoverable	-	-	-	REPORT mg/l	REPORT mg/l	Monthly	Composite	-
Organics, Total Toxic (TTO) 5/	-	-	-	-	2.13 mg/l	Monthly	Composite	-
BOD, Carbonaceous 05 Day, 20C	-	-	-	38 mg/l	57 mg/l	2X Monthly	Composite	-

THE DISCHARGE SHALL HAVE NO SHEEN, AND THERE SHALL BE NO DISCHARGE OF VISIBLE OIL, FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

- 1/ Samples collected to comply with the monitoring requirements specified above shall be collected at the following location: At the nearest accessible location just prior to discharge and after final treatment. Unless otherwise specified, composite samples shall be time composite samples collected using automatic sampling equipment or a minimum of eight (8) equal volume grab samples collected over equal time intervals. All composite samples shall be collected for the total period of discharge not to exceed 24 hours.
- 2/ If only one sampling event occurs during a month, the sample result shall be reported on the discharge monitoring report as both the monthly average and daily maximum value for all parameters with a monthly average limitation.
- 3/ See Part IV.A for Best Management Practices (BMP) Plan Requirements.
- 4/ For the purpose of demonstration of compliance with this parameter, "Total" and "Total Recoverable" shall be considered equivalent.
- 5/ See Part IV.E and F for Total Toxic Organics (TTO) Requirements and Listing.
- 6/ The permittee shall not augment the use of process wastewater or otherwise dilute the wastewater as a partial or total substitute for adequate treatment to achieve compliance with these limitations.

During the period beginning on the effective date of this permit and lasting through the expiration date of this permit, the permittee is authorized to discharge from the following point source(s) outfall(s), described more fully in the permittee's application:

DSN001T: Whole Effluent Toxicity 3/ 4/

Such discharge shall be limited and monitored by the permittee as specified below:

<u>EFFLUENT CHARACTERISTIC</u>	<u>DISCHARGE LIMITATIONS</u>			<u>MONITORING REQUIREMENTS 1/</u>				
	<u>Monthly Average</u>	<u>Daily Maximum</u>	<u>Daily Minimum</u>	<u>Monthly Average</u>	<u>Daily Maximum</u>	<u>Measurement Frequency 2/</u>	<u>Sample Type</u>	<u>Seasonal</u>
Toxicity, Ceriodaphnia Acute	-	0 pass(0)/fail(1)	-	-	-	Quarterly	Composite	-
Toxicity, Pimephales Acute	-	0 pass(0)/fail(1)	-	-	-	Quarterly	Composite	-

THE DISCHARGE SHALL HAVE NO SHEEN, AND THERE SHALL BE NO DISCHARGE OF VISIBLE OIL, FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

- 1/ Samples collected to comply with the monitoring requirements specified above shall be collected at the following location: At the nearest accessible location just prior to discharge and after final treatment. Unless otherwise specified, composite samples shall be time composite samples collected using automatic sampling equipment or a minimum of eight (8) equal volume grab samples collected over equal time intervals. All composite samples shall be collected for the total period of discharge not to exceed 24 hours.
- 2/ If only one sampling event occurs during a month, the sample result shall be reported on the discharge monitoring report as both the monthly average and daily maximum value for all parameters with a monthly average limitation.
- 3/ See Part IV.A for Best Management Practices (BMP) Plan Requirements.
- 4/ See Part IV.C for Effluent Toxicity and Biomonitoring Requirements.

During the period beginning on the effective date of this permit and lasting through the expiration date of this permit, the permittee is authorized to discharge from the following point source(s) outfall(s), described more fully in the permittee's application:

DSN002Q and DSN003Q: Non-contact cooling water, water tank effluent overflow, boiler blowdown, demineralizer blowdown/backwash, equipment/vehicles rinse water, emergency fire suppression water, compressor condensate, and SW runoff associated with the manufacturing of carbon steel. 3/ 4/ 6/

Such discharge shall be limited and monitored by the permittee as specified below:

<u>EFFLUENT CHARACTERISTIC</u>	<u>DISCHARGE LIMITATIONS</u>			<u>MONITORING REQUIREMENTS 1/</u>				
	<u>Monthly Average</u>	<u>Daily Maximum</u>	<u>Daily Minimum</u>	<u>Monthly Average</u>	<u>Daily Maximum</u>	<u>Measurement Frequency 2/</u>	<u>Sample Type</u>	<u>Seasonal</u>
pH	-	-	REPORT S.U.	-	REPORT S.U.	Quarterly	Grab	-
Solids, Total Suspended	-	-	-	-	REPORT mg/l	Quarterly	Grab	-
Oil & Grease	-	-	-	-	15 mg/l	Quarterly	Grab	-
Chromium, Total (As Cr)	-	-	-	-	REPORT mg/l	Quarterly	Grab	-
Lead, Total (As Pb)	-	-	-	-	REPORT mg/l	Quarterly	Grab	-
Nickel, Total (As Ni)	-	-	-	-	REPORT mg/l	Quarterly	Grab	-
Zinc, Total (As Zn)	-	-	-	-	REPORT mg/l	Quarterly	Grab	-
Flow, In Conduit or Thru Treatment Plant	-	REPORT MGD	-	-	-	Quarterly	Estimate	-

THE DISCHARGE SHALL HAVE NO SHEEN, AND THERE SHALL BE NO DISCHARGE OF VISIBLE OIL, FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

- 1/ Samples collected to comply with the monitoring requirements specified above shall be collected at the following location: At the nearest accessible location just prior to discharge and after final treatment. Unless otherwise specified, composite samples shall be time composite samples collected using automatic sampling equipment or a minimum of eight (8) equal volume grab samples collected over equal time intervals. All composite samples shall be collected for the total period of discharge not to exceed 24 hours.
- 2/ If only one sampling event occurs during a month, the sample result shall be reported on the discharge monitoring report as both the monthly average and daily maximum value for all parameters with a monthly average limitation.
- 3/ See Part IV.A for Best Management Practices (BMP) Plan Requirements.
- 4/ See Part IV.D for 316 (b) Requirements.
- 5/ For the purpose of demonstration of compliance with this parameter, "Total" and "Total Recoverable" shall be considered equivalent.
- 6/ DSN002 is deemed representative and therefore no sampling is required at DSN003.

During the period beginning on the effective date of this permit and lasting through the expiration date of this permit, the permittee is authorized to discharge from the following point source(s) outfall(s), described more fully in the permittee's application:

DSN002Q and DSN003Q (continued): Non-contact cooling water, water tank effluent overflow, boiler blowdown, demineralizer blowdown/backwash, equipment/vehicles rinse water, emergency fire suppression water, compressor condensate, and SW runoff associated with the manufacturing of carbon steel. 3/ 4 6/

Such discharge shall be limited and monitored by the permittee as specified below:

<u>EFFLUENT CHARACTERISTIC</u>	<u>DISCHARGE LIMITATIONS</u>			<u>MONITORING REQUIREMENTS 1/</u>				
	<u>Monthly Average</u>	<u>Daily Maximum</u>	<u>Daily Minimum</u>	<u>Monthly Average</u>	<u>Daily Maximum</u>	<u>Measurement Frequency 2/</u>	<u>Sample Type</u>	<u>Seasonal</u>
Mercury, Total (As Hg) 5/ 7/	-	-	-	-	REPORT mg/l	Quarterly	Grab	-
Chemical Oxygen Demand (COD)	-	-	-	-	REPORT mg/l	Quarterly	Grab	-

THE DISCHARGE SHALL HAVE NO SHEEN, AND THERE SHALL BE NO DISCHARGE OF VISIBLE OIL, FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

- 1/ Samples collected to comply with the monitoring requirements specified above shall be collected at the following location: At the nearest accessible location just prior to discharge and after final treatment. Unless otherwise specified, composite samples shall be time composite samples collected using automatic sampling equipment or a minimum of eight (8) equal volume grab samples collected over equal time intervals. All composite samples shall be collected for the total period of discharge not to exceed 24 hours.
- 2/ If only one sampling event occurs during a month, the sample result shall be reported on the discharge monitoring report as both the monthly average and daily maximum value for all parameters with a monthly average limitation.
- 3/ See Part IV.A for Best Management Practices (BMP) Plan Requirements.
- 4/ See Part IV.D for 316 (b) Requirements.
- 5/ For the purpose of demonstration of compliance with this parameter, "Total" and "Total Recoverable" shall be considered equivalent.
- 6/ DSN002 is deemed representative and therefore no sampling is required at DSN003.
- 7/ EPA Method 1631E/1669 shall be used for the determination of compliance with this parameter.

During the period beginning on the effective date of this permit and lasting through the expiration date of this permit, the permittee is authorized to discharge from the following point source(s) outfall(s), described more fully in the permittee's application:

DSN004Q: Non-contact cooling water, water tank effluent overflow, boiler blowdown, demineralizer blowdown/backwash, equipment/vehicles rinse water, emergency fire suppression water, compressor condensate, and SW runoff associated with the manufacturing of carbon steel. 3/ 4/

Such discharge shall be limited and monitored by the permittee as specified below:

<u>EFFLUENT CHARACTERISTIC</u>	<u>DISCHARGE LIMITATIONS</u>				<u>MONITORING REQUIREMENTS 1/</u>			
	<u>Monthly Average</u>	<u>Daily Maximum</u>	<u>Daily Minimum</u>	<u>Monthly Average</u>	<u>Daily Maximum</u>	<u>Measurement Frequency 2/</u>	<u>Sample Type</u>	<u>Seasonal</u>
pH	-	-	REPORT S.U.	-	REPORT S.U.	Quarterly	Grab	-
Solids, Total Suspended	-	-	-	-	REPORT mg/l	Quarterly	Grab	-
Oil & Grease	-	-	-	-	15 mg/l	Quarterly	Grab	-
Chromium, Total (As Cr) 5/	-	-	-	-	REPORT mg/l	Quarterly	Grab	-
Lead, Total (As Pb) 5/	-	-	-	-	REPORT mg/l	Quarterly	Grab	-
Nickel, Total (As Ni) 5/	-	-	-	-	REPORT mg/l	Quarterly	Grab	-
Zinc, Total (As Zn) 5/	-	-	-	-	REPORT mg/l	Quarterly	Grab	-
Flow, In Conduit or Thru Treatment Plant	-	REPORT MGD	-	-	-	Quarterly	Estimate	-

THE DISCHARGE SHALL HAVE NO SHEEN, AND THERE SHALL BE NO DISCHARGE OF VISIBLE OIL, FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

- 1/ Samples collected to comply with the monitoring requirements specified above shall be collected at the following location: At the nearest accessible location just prior to discharge and after final treatment. Unless otherwise specified, composite samples shall be time composite samples collected using automatic sampling equipment or a minimum of eight (8) equal volume grab samples collected over equal time intervals. All composite samples shall be collected for the total period of discharge not to exceed 24 hours.
- 2/ If only one sampling event occurs during a month, the sample result shall be reported on the discharge monitoring report as both the monthly average and daily maximum value for all parameters with a monthly average limitation.
- 3/ See Part IV.A for Best Management Practices (BMP) Plan Requirements.
- 4/ See Part IV.D for 316 (b) Requirements.
- 5/ For the purpose of demonstration of compliance with this parameter, "Total" and "Total Recoverable" shall be considered equivalent.

During the period beginning on the effective date of this permit and lasting through the expiration date of this permit, the permittee is authorized to discharge from the following point source(s) outfall(s), described more fully in the permittee's application:

DSN004Q (continued): Non-contact cooling water, water tank effluent overflow, boiler blowdown, demineralizer blowdown/backwash, equipment/vehicles rinse water, emergency fire suppression water, compressor condensate, and SW runoff associated with the manufacturing of carbon steel. 3/ 4/

Such discharge shall be limited and monitored by the permittee as specified below:

<u>EFFLUENT CHARACTERISTIC</u>	<u>DISCHARGE LIMITATIONS</u>			<u>MONITORING REQUIREMENTS 1/</u>				
	<u>Monthly Average</u>	<u>Daily Maximum</u>	<u>Daily Minimum</u>	<u>Monthly Average</u>	<u>Daily Maximum</u>	<u>Measurement Frequency 2/</u>	<u>Sample Type</u>	<u>Seasonal</u>
Mercury, Total (As Hg) 5/ 6/	-	-	-	-	REPORT mg/l	Quarterly	Grab	-
Chemical Oxygen Demand (COD)	-	-	-	-	REPORT mg/l	Quarterly	Grab	-

THE DISCHARGE SHALL HAVE NO SHEEN, AND THERE SHALL BE NO DISCHARGE OF VISIBLE OIL, FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

- 1/ Samples collected to comply with the monitoring requirements specified above shall be collected at the following location: At the nearest accessible location just prior to discharge and after final treatment. Unless otherwise specified, composite samples shall be time composite samples collected using automatic sampling equipment or a minimum of eight (8) equal volume grab samples collected over equal time intervals. All composite samples shall be collected for the total period of discharge not to exceed 24 hours.
- 2/ If only one sampling event occurs during a month, the sample result shall be reported on the discharge monitoring report as both the monthly average and daily maximum value for all parameters with a monthly average limitation.
- 3/ See Part IV.A for Best Management Practices (BMP) Plan Requirements.
- 4/ See Part IV.C for 316 (b) Requirements.
- 5/ For the purpose of demonstration of compliance with this parameter, "Total" and "Total Recoverable" shall be considered equivalent.
- 6/ EPA Method 1631E/1669 shall be used for the determination of compliance with this parameter.

During the period beginning on the effective date of this permit and lasting through the expiration date of this permit, the permittee is authorized to discharge from the following point source(s) outfall(s), described more fully in the permittee's application:

DSN007Q: Stormwater runoff associated with the manufacturing of carbon steel. 3/

Such discharge shall be limited and monitored by the permittee as specified below:

<u>EFFLUENT CHARACTERISTIC</u>	<u>DISCHARGE LIMITATIONS</u>			<u>MONITORING REQUIREMENTS 1/</u>				
	<u>Monthly Average</u>	<u>Daily Maximum</u>	<u>Daily Minimum</u>	<u>Monthly Average</u>	<u>Daily Maximum</u>	<u>Measurement Frequency 2/</u>	<u>Sample Type</u>	<u>Seasonal</u>
pH	-	-	REPORT S.U.	-	REPORT S.U.	Quarterly	Grab	-
Solids, Total Suspended	-	-	-	-	REPORT mg/l	Quarterly	Grab	-
Oil & Grease	-	-	-	-	15 mg/l	Quarterly	Grab	-
Chromium, Total (As Cr) 4/	-	-	-	-	REPORT mg/l	Quarterly	Grab	-
Lead, Total (As Pb) 4/	-	-	-	-	REPORT mg/l	Quarterly	Grab	-
Nickel, Total (As Ni) 4/	-	-	-	-	REPORT mg/l	Quarterly	Grab	-
Zinc, Total (As Zn) 4/	-	-	-	-	REPORT mg/l	Quarterly	Grab	-
Flow, In Conduit or Thru Treatment Plant	-	REPORT MGD	-	-	-	Quarterly	Estimate	-

THE DISCHARGE SHALL HAVE NO SHEEN, AND THERE SHALL BE NO DISCHARGE OF VISIBLE OIL, FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

- 1/ Samples collected to comply with the monitoring requirements specified above shall be collected at the following location: At the nearest accessible location just prior to discharge and after final treatment. Unless otherwise specified, composite samples shall be time composite samples collected using automatic sampling equipment or a minimum of eight (8) equal volume grab samples collected over equal time intervals. All composite samples shall be collected for the total period of discharge not to exceed 24 hours.
- 2/ If only one sampling event occurs during a month, the sample result shall be reported on the discharge monitoring report as both the monthly average and daily maximum value for all parameters with a monthly average limitation.
- 3/ See Part IV.A for Best Management Practices (BMP) Plan Requirements.
- 4/ For the purpose of demonstration of compliance with this parameter, "Total" and "Total Recoverable" shall be considered equivalent.

During the period beginning on the effective date of this permit and lasting through the expiration date of this permit, the permittee is authorized to discharge from the following point source(s) outfall(s), described more fully in the permittee's application:

DSN007Q (continued): Stormwater runoff associated with the manufacturing of carbon steel. 3/

Such discharge shall be limited and monitored by the permittee as specified below:

<u>EFFLUENT CHARACTERISTIC</u>	<u>DISCHARGE LIMITATIONS</u>			<u>Monthly Average</u>	<u>Daily Maximum</u>	<u>Daily Minimum</u>	<u>Monthly Average</u>	<u>Daily Maximum</u>	<u>MONITORING REQUIREMENTS 1/</u>		
	<u>Monthly Average</u>	<u>Daily Maximum</u>	<u>Daily Minimum</u>						<u>Measurement Frequency 2/</u>	<u>Sample Type</u>	<u>Seasonal</u>
Chemical Oxygen Demand (COD)	-	-	-	-	-	-	-	REPORT mg/l	Quarterly	Grab	-

THE DISCHARGE SHALL HAVE NO SHEEN, AND THERE SHALL BE NO DISCHARGE OF VISIBLE OIL, FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

- 1/ Samples collected to comply with the monitoring requirements specified above shall be collected at the following location: At the nearest accessible location just prior to discharge and after final treatment. Unless otherwise specified, composite samples shall be time composite samples collected using automatic sampling equipment or a minimum of eight (8) equal volume grab samples collected over equal time intervals. All composite samples shall be collected for the total period of discharge not to exceed 24 hours.
- 2/ If only one sampling event occurs during a month, the sample result shall be reported on the discharge monitoring report as both the monthly average and daily maximum value for all parameters with a monthly average limitation.
- 3/ See Part IV.A for Best Management Practices (BMP) Plan Requirements.

During the period beginning on the effective date of this permit and lasting through the expiration date of this permit, the permittee is authorized to discharge from the following point source(s) outfall(s), described more fully in the permittee's application:

DSN009Q: Stormwater runoff associated with the manufacturing of carbon steel. 3/ 4/

Such discharge shall be limited and monitored by the permittee as specified below:

<u>EFFLUENT CHARACTERISTIC</u>	<u>DISCHARGE LIMITATIONS</u>			<u>MONITORING REQUIREMENTS 1/</u>				
	<u>Monthly Average</u>	<u>Daily Maximum</u>	<u>Daily Minimum</u>	<u>Monthly Average</u>	<u>Daily Maximum</u>	<u>Measurement Frequency 2/</u>	<u>Sample Type</u>	<u>Seasonal</u>
pH	-	-	REPORT S.U.	-	REPORT S.U.	Quarterly	Grab	-
Solids, Total Suspended	-	-	-	-	REPORT mg/l	Quarterly	Grab	-
Oil & Grease	-	-	-	-	15 mg/l	Quarterly	Grab	-
Chromium, Total (As Cr) 5/	-	-	-	-	REPORT mg/l	Quarterly	Grab	-
Lead, Total (As Pb) 5/	-	-	-	-	REPORT mg/l	Quarterly	Grab	-
Nickel, Total (As Ni) 5/	-	-	-	-	REPORT mg/l	Quarterly	Grab	-
Zinc, Total (As Zn) 5/	-	-	-	-	REPORT mg/l	Quarterly	Grab	-
Flow, In Conduit or Thru Treatment Plant	-	REPORT MGD	-	-	-	Quarterly	Estimate	-

THE DISCHARGE SHALL HAVE NO SHEEN, AND THERE SHALL BE NO DISCHARGE OF VISIBLE OIL, FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

- 1/ Samples collected to comply with the monitoring requirements specified above shall be collected at the following location: At the nearest accessible location just prior to discharge and after final treatment. Unless otherwise specified, composite samples shall be time composite samples collected using automatic sampling equipment or a minimum of eight (8) equal volume grab samples collected over equal time intervals. All composite samples shall be collected for the total period of discharge not to exceed 24 hours.
- 2/ If only one sampling event occurs during a month, the sample result shall be reported on the discharge monitoring report as both the monthly average and daily maximum value for all parameters with a monthly average limitation.
- 3/ See Part IV.A for Best Management Practices (BMP) Plan Requirements.
- 4/ See Part IV.B for Stormwater Measurement and Sampling Requirements.
- 5/ For the purpose of demonstration of compliance with this parameter, "Total" and "Total Recoverable" shall be considered equivalent.

During the period beginning on the effective date of this permit and lasting through the expiration date of this permit, the permittee is authorized to discharge from the following point source(s) outfall(s), described more fully in the permittee's application:

DSN009Q (continued): Stormwater runoff associated with the manufacturing of carbon steel. 3/ 4/

Such discharge shall be limited and monitored by the permittee as specified below:

<u>EFFLUENT CHARACTERISTIC</u>	<u>DISCHARGE LIMITATIONS</u>			<u>MONITORING REQUIREMENTS 1/</u>				
	<u>Monthly Average</u>	<u>Daily Maximum</u>	<u>Daily Minimum</u>	<u>Monthly Average</u>	<u>Daily Maximum</u>	<u>Measurement Frequency 2/</u>	<u>Sample Type</u>	<u>Seasonal</u>
Mercury, Total (As Hg) 5/ 6/	-	-	-	-	REPORT mg/l	Quarterly	Grab	-
Chemical Oxygen Demand (COD)	-	-	-	-	REPORT mg/l	Quarterly	Grab	-

THE DISCHARGE SHALL HAVE NO SHEEN, AND THERE SHALL BE NO DISCHARGE OF VISIBLE OIL, FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

- 1/ Samples collected to comply with the monitoring requirements specified above shall be collected at the following location: At the nearest accessible location just prior to discharge and after final treatment. Unless otherwise specified, composite samples shall be time composite samples collected using automatic sampling equipment or a minimum of eight (8) equal volume grab samples collected over equal time intervals. All composite samples shall be collected for the total period of discharge not to exceed 24 hours.
- 2/ If only one sampling event occurs during a month, the sample result shall be reported on the discharge monitoring report as both the monthly average and daily maximum value for all parameters with a monthly average limitation.
- 3/ See Part IV.A for Best Management Practices (BMP) Plan Requirements.
- 4/ See Part IV.B for Stormwater Measurement and Sampling Requirements.
- 5/ For the purpose of demonstration of compliance with this parameter, "Total" and "Total Recoverable" shall be considered equivalent.
- 6/ EPA Method 1631E/1669 shall be used for the determination of compliance with this parameter.

During the period beginning on the effective date of this permit and lasting through the expiration date of this permit, the permittee is authorized to discharge from the following point source(s) outfall(s), described more fully in the permittee's application:

DSN010Q: Stormwater runoff associated with the manufacturing of carbon steel. 3/ 4/

Such discharge shall be limited and monitored by the permittee as specified below:

<u>EFFLUENT CHARACTERISTIC</u>	<u>DISCHARGE LIMITATIONS</u>			<u>MONITORING REQUIREMENTS 1/</u>				
	<u>Monthly Average</u>	<u>Daily Maximum</u>	<u>Daily Minimum</u>	<u>Monthly Average</u>	<u>Daily Maximum</u>	<u>Measurement Frequency 2/</u>	<u>Sample Type</u>	<u>Seasonal</u>
pH	-	-	REPORT S.U.	-	REPORT S.U.	Quarterly	Grab	-
Solids, Total Suspended	-	-	-	-	REPORT mg/l	Quarterly	Grab	-
Oil & Grease	-	-	-	-	15 mg/l	Quarterly	Grab	-
Chromium, Total (As Cr) 5/	-	-	-	-	REPORT mg/l	Quarterly	Grab	-
Lead, Total (As Pb) 5/	-	-	-	-	REPORT mg/l	Quarterly	Grab	-
Nickel, Total (As Ni) 5/	-	-	-	-	REPORT mg/l	Quarterly	Grab	-
Zinc, Total (As Zn) 5/	-	-	-	-	REPORT mg/l	Quarterly	Grab	-
Flow, In Conduit or Thru Treatment Plant	-	REPORT MGD	-	-	-	Quarterly	Estimate	-

THE DISCHARGE SHALL HAVE NO SHEEN, AND THERE SHALL BE NO DISCHARGE OF VISIBLE OIL, FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

- 1/ Samples collected to comply with the monitoring requirements specified above shall be collected at the following location: At the nearest accessible location just prior to discharge and after final treatment. Unless otherwise specified, composite samples shall be time composite samples collected using automatic sampling equipment or a minimum of eight (8) equal volume grab samples collected over equal time intervals. All composite samples shall be collected for the total period of discharge not to exceed 24 hours.
- 2/ If only one sampling event occurs during a month, the sample result shall be reported on the discharge monitoring report as both the monthly average and daily maximum value for all parameters with a monthly average limitation.
- 3/ See Part IV.A for Best Management Practices (BMP) Plan Requirements.
- 4/ See Part IV.B for Stormwater Measurement and Sampling Requirements.
- 5/ For the purpose of demonstration of compliance with this parameter, "Total" and "Total Recoverable" shall be considered equivalent.

During the period beginning on the effective date of this permit and lasting through the expiration date of this permit, the permittee is authorized to discharge from the following point source(s) outfall(s), described more fully in the permittee's application:

DSN010Q (continued): Stormwater runoff associated with the manufacturing of carbon steel. 3/ 4/

Such discharge shall be limited and monitored by the permittee as specified below:

<u>EFFLUENT CHARACTERISTIC</u>	<u>DISCHARGE LIMITATIONS</u>			<u>Monthly Average</u>	<u>Daily Maximum</u>	<u>Daily Minimum</u>	<u>Monthly Average</u>	<u>Daily Maximum</u>	<u>MONITORING REQUIREMENTS 1/</u>		
	<u>Monthly Average</u>	<u>Daily Maximum</u>	<u>Daily Minimum</u>						<u>Measurement Frequency 2/</u>	<u>Sample Type</u>	<u>Seasonal</u>
Chemical Oxygen Demand (COD)	-	-	-	-	-	-	-	REPORT mg/l	Quarterly	Grab	-

THE DISCHARGE SHALL HAVE NO SHEEN, AND THERE SHALL BE NO DISCHARGE OF VISIBLE OIL, FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

- 1/ Samples collected to comply with the monitoring requirements specified above shall be collected at the following location: At the nearest accessible location just prior to discharge and after final treatment. Unless otherwise specified, composite samples shall be time composite samples collected using automatic sampling equipment or a minimum of eight (8) equal volume grab samples collected over equal time intervals. All composite samples shall be collected for the total period of discharge not to exceed 24 hours.
- 2/ If only one sampling event occurs during a month, the sample result shall be reported on the discharge monitoring report as both the monthly average and daily maximum value for all parameters with a monthly average limitation.
- 3/ See Part IV.A for Best Management Practices (BMP) Plan Requirements.
- 4/ See Part IV.B for Stormwater Measurement and Sampling Requirements.

B. DISCHARGE MONITORING AND RECORD KEEPING REQUIREMENTS

1. Representative Sampling

Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge and shall be in accordance with the provisions of this permit.

2. Test Procedures

For the purpose of reporting and compliance, permittees shall use one of the following procedures:

a. For parameters with an EPA established Minimum Level (ML), report the measured value if the analytical result is at or above the ML and report "0" for values below the ML. Test procedures for the analysis of pollutants shall conform to 40 CFR Part 136 and guidelines published pursuant to Section 304(h) of the FWPCA, 33 U.S.C. Section 1314(h). If more than one method for analysis of a substance is approved for use, a method having a minimum level lower than the permit limit shall be used. If the minimum level of all methods is higher than the permit limit, the method having the lowest minimum level shall be used and a report of less than the minimum level shall be reported as zero and will constitute compliance; however, should EPA approve a method with a lower minimum level during the term of this permit the permittee shall use the newly approved method.

b. For pollutants parameters without an established ML, an interim ML may be utilized. The interim ML shall be calculated as 3.18 times the Method Detection Level (MDL) calculated pursuant to 40 CFR Part 136, Appendix B.

Permittees may develop an effluent matrix-specific ML, where an effluent matrix prevents attainment of the established ML. However, a matrix specific ML shall be based upon proper laboratory method and technique. Matrix-specific MLs must be approved by the Department, and may be developed by the permittee during permit issuance, reissuance, modification, or during compliance schedule.

In either case the measured value should be reported if the analytical result is at or above the ML and "0" reported for values below the ML.

c. For parameters without an EPA established ML, interim ML, or matrix-specific ML, a report of less than the detection limit shall constitute compliance if the detection limit of all analytical methods is higher than the permit limit using the most sensitive EPA approved method. For the purpose of calculating a monthly average, "0" shall be used for values reported less than the detection limit.

The Minimum Level utilized for procedures A and B above shall be reported on the permittee's DMR. When an EPA approved test procedure for analysis of a pollutant does not exist, the Director shall approve the procedure to be used.

3. Recording of Results

For each measurement or sample taken pursuant to the requirements of this permit, the permittee shall record the following information:

- a. The facility name and location, point source number, date, time and exact place of sampling;
- b. The name(s) of person(s) who obtained the samples or measurements;
- c. The dates and times the analyses were performed;
- d. The name(s) of the person(s) who performed the analyses;
- e. The analytical techniques or methods used, including source of method and method number; and
- f. The results of all required analyses.

4. Records Retention and Production

The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by the permit, and records of all data used to complete the above reports or the application for this permit, for a period of at least three years from the date of the sample measurement, report or application. This period may be extended by request of the Director at any time. If litigation or other enforcement action, under the AWPCA and/or the FWPCA, is ongoing which involves any of the above records, the records shall be kept until the litigation is resolved. Upon the written request of the Director or his designee, the permittee shall provide the Director with a copy of any record required to be retained by this paragraph. Copies of these records shall not be submitted unless requested.

All records required to be kept for a period of three years shall be kept at the permitted facility or an alternate location approved by the Department in writing and shall be available for inspection.

5. Monitoring Equipment and Instrumentation

All equipment and instrumentation used to determine compliance with the requirements of this permit shall be installed, maintained, and calibrated in accordance with the manufacturer's instructions or, in the absence of manufacturer's instructions, in accordance with accepted practices. The permittee shall develop and maintain quality assurance procedures to ensure proper operation and maintenance of all equipment and instrumentation. The quality assurance procedures shall include the proper use, maintenance, and installation, when appropriate, of monitoring equipment at the plant site.

C. DISCHARGE REPORTING REQUIREMENTS

1. Reporting of Monitoring Requirements

- a. The permittee shall conduct the required monitoring in accordance with the following schedule:

MONITORING REQUIRED MORE FREQUENTLY THAN MONTHLY AND MONTHLY shall be conducted during the first full month following the effective date of coverage under this permit and every month thereafter.

QUARTERLY MONITORING shall be conducted at least once during each calendar quarter. Calendar quarters are the periods of January through March, April through June, July through September, and October through December. The permittee shall conduct the quarterly monitoring during the first complete calendar quarter following the effective date of this permit and is then required to monitor once during each quarter thereafter. Quarterly monitoring may be done anytime during the quarter, unless restricted elsewhere in this permit, but it should be submitted with the last DMR due for the quarter, i.e., (March, June, September and December DMR's).

SEMIANNUAL MONITORING shall be conducted at least once during the period of January through June and at least once during the period of July through December. The permittee shall conduct the semiannual monitoring during the first complete calendar semiannual period following the effective date of this permit and is then required to monitor once during each semiannual period thereafter. Semiannual monitoring may be done anytime during the semiannual period, unless restricted elsewhere in this permit, but it should be submitted with the last DMR for the month of the semiannual period, i.e. (June and December DMR's).

ANNUAL MONITORING shall be conducted at least once during the period of January through December. The permittee shall conduct the annual monitoring during the first complete calendar annual period following the effective date of this permit and is then required to monitor once during each annual period thereafter. Annual monitoring may be done anytime during the year, unless restricted elsewhere in this permit, but it should be submitted with the December DMR.

- b. The permittee shall submit discharge monitoring reports (DMRs) on the forms provided by the Department and in accordance with the following schedule:

REPORTS OF MORE FREQUENTLY THAN MONTHLY AND MONTHLY TESTING shall be submitted on a **monthly** basis. The first report is due on the **28th day of (MONTH, YEAR)**. The reports shall be submitted so that they are received by the Department no later than the 28th day of the month following the reporting period.

REPORTS OF QUARTERLY TESTING shall be submitted on a **quarterly** basis. The first report is due on the **28th day of [Month, Year]**. The reports shall be submitted so that they are received by the Department no later than the 28th day of the month following the reporting period.

REPORTS OF SEMIANNUAL TESTING shall be submitted on a semiannual basis. The reports are due on the 28th day of JANUARY and the 28th day of JULY. The reports shall be submitted so that they are received by the Department no later than the 28th day of the month following the reporting period.

REPORTS OF ANNUAL TESTING shall be submitted on an annual basis. The first report is due on the 28th day of JANUARY. The reports shall be submitted so that they are received by the Department no later than the 28th day of the month following the reporting period.

- c. Except as allowed by Provision I.C.1.c.(1) or (2), the permittee shall submit all Discharge Monitoring Reports (DMRs) required by Provision I.C.1.b by utilizing the Department's web-based Electronic Environmental (E2) Reporting System.

- (1) If the permittee is unable to complete the electronic submittal of DMR data due to technical problems originating with the Department's E2 Reporting system (this could include entry/submittal issues with an entire set of DMRs or individual parameters), the permittee is not relieved of their obligation to submit DMR data to the Department by the date specified in Provision I.C.1.b, unless otherwise directed by the Department.

If the E2 Reporting System is down on the 28th day of the month in which the DMR is due or is down for an extended period of time, as determined by the Department, when a DMR is required to be submitted, the permittee may submit the data in an alternate manner and format acceptable to the Department. Preapproved alternate acceptable methods include faxing, e-mailing, mailing, or hand-delivery of data such that they are received by the required reporting date. Within 5 calendar days of the E2 Reporting System resuming operation, the permittee shall enter the data into the E2 Reporting System, unless an alternate timeframe is approved by the Department. An attachment should be included with the E2 DMR submittal verifying the original submittal date (date of the fax, copy of the dated e-mail, or hand-delivery stamped date), if applicable.

- (2) The permittee may submit a request to the Department for a temporary electronic reporting waiver for DMR submittals. The waiver request should include the permit number; permittee name; facility/site name; facility address; name, address, and contact information for the responsible official or duly authorized representative; a detailed statement regarding the basis for requesting such a waiver; and the duration for which the waiver is requested. Approved electronic reporting waivers are not transferrable.

Permittees with an approved electronic reporting waiver for DMRs may submit hard copy DMRs for the period that the approved electronic reporting waiver request is effective. The permittee shall submit the Department-approved DMR forms to the address listed in Provision I.C.1.e.

- (3) If a permittee is allowed to submit a hard copy DMR, the DMR must be legible and bear an original signature. Photo and electronic copies of the signature are not acceptable and shall not satisfy the reporting requirements of this permit.
- (4) If the permittee, using approved analytical methods as specified in Provision I.B.2, monitors any discharge from a point source for a limited substance identified in Provision I.A. of this permit more frequently than required by this permit, the results of such monitoring shall be included in the calculation and reporting of values on the DMR and the increased frequency shall be indicated on the DMR.
- (5) In the event no discharge from a point source identified in Provision I.A. of this permit and described more fully in the permittee's application occurs during a monitoring period, the permittee shall report "No Discharge" for such period on the appropriate DMR.

- d. All reports and forms required to be submitted by this permit, the AWPCA and the Department's Rules, shall be electronically signed (or, if allowed by the Department, traditionally signed) by a "responsible official" of the permittee as defined in ADEM Administrative Code Rule 335-6-5-.14 or a "duly authorized representative" of such official as defined in ADEM Administrative Code Rule 335-6-5-.14 and shall bear the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

- e. Discharge Monitoring Reports required by this permit, the AWPCA, and the Department's Rules that are being submitted in hard copy shall be addressed to:

**Alabama Department of Environmental Management
Permits and Services Division
Environmental Data Section
Post Office Box 301463
Montgomery, Alabama 36130-1463**

Certified and Registered Mail containing Discharge Monitoring Reports shall be addressed to:

**Alabama Department of Environmental Management
Permits and Services Division
Environmental Data Section
1400 Coliseum Boulevard
Montgomery, Alabama 36110-2400**

- f. All other correspondence and reports required to be submitted by this permit, the AWPCA, and the Department's Rules shall be addressed to:

Alabama Department of Environmental Management

Water Division
Post Office Box 301463
Montgomery, Alabama 36130-1463

Certified and Registered Mail shall be addressed to:

Alabama Department of Environmental Management
Water Division
1400 Coliseum Boulevard
Montgomery, Alabama 36110-2400

- g. If this permit is a re-issuance, then the permittee shall continue to submit DMRs in accordance with the requirements of their previous permit until such time as DMRs are due as discussed in Part I.E.1.b above.

1. Noncompliance Notification

a. 24-Hour Noncompliance Reporting

The permittee shall report to the Director, within 24-hours of becoming aware of the noncompliance, any noncompliance which may endanger health or the environment. This shall include but is not limited to the following circumstances:

- (1) does not comply with any daily minimum or maximum discharge limitation for an effluent characteristic specified in Provision I. A. of this permit which is denoted by an "(X)";
- (2) threatens human health or welfare, fish or aquatic life, or water quality standards;
- (3) does not comply with an applicable toxic pollutant effluent standard or prohibition established under Section 307(a) of the FWPCA, 33 U.S.C. Section 1317(a);
- (4) contains a quantity of a hazardous substance which has been determined may be harmful to public health or welfare under Section 311(b)(4) of the FWPCA, 33 U.S.C. Section 1321(b)(4);
- (5) exceeds any discharge limitation for an effluent characteristic as a result of an unanticipated bypass or upset; and
- (6) is an unpermitted direct or indirect discharge of a pollutant to a water of the state (unpermitted discharges properly reported to the Department under any other requirement are not required to be reported under this provision).

The permittee shall orally report the occurrence and circumstances of such discharge to the Director within 24-hours after the permittee becomes aware of the occurrence of such discharge. In addition to the oral report, the permittee shall submit to the Director or Designee a written report as provided in Part I.C.2.c no later than five (5) days after becoming aware of the occurrence of such discharge.

- b. If for any reason, the permittee's discharge does not comply with any limitation of this permit, the permittee shall submit to the Director or Designee a written report as provided in Part I.C.2.c below, such report shall be submitted with the next Discharge Monitoring Report required to be submitted by Part I.C.1 of this permit after becoming aware of the occurrence of such noncompliance.
- c. Any written report required to be submitted to the Director or Designee by Part I.C.2 a. or b. shall be submitted using a copy of the Noncompliance Notification Form provided with this permit and shall include the following information:
- (1) A description of the discharge and cause of noncompliance;
 - (2) The period of noncompliance, including exact dates and times or, if not corrected, the anticipated time the noncompliance is expected to continue; and
 - (3) A description of the steps taken and/or being taken to reduce or eliminate the noncomplying discharge and to prevent its recurrence.

D. OTHER REPORTING AND NOTIFICATION REQUIREMENTS

1. Anticipated Noncompliance

The permittee shall give the Director written advance notice of any planned changes or other circumstances regarding a facility which may result in noncompliance with permit requirements.

2. Termination of Discharge

The permittee shall notify the Director, in writing, when all discharges from any point source(s) identified in Provision I. A. of this permit have permanently ceased. This notification shall serve as sufficient cause for instituting procedures for modification or termination of the permit.

3. Updating Information

- a. The permittee shall inform the Director of any change in the permittee's mailing address, telephone number or in the permittee's designation of a facility contact or office having the authority and responsibility to prevent and abate violations of the AWPCA, the Department's Rules, and the terms and conditions of this permit, in writing, no later than ten (10) days after such change. Upon request of the Director or his designee, the permittee shall furnish the Director with an update of any information provided in the permit application.
- b. If the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Director, it shall promptly submit such facts or information with a written explanation for the mistake and/or omission.

4. Duty to Provide Information

The permittee shall furnish to the Director, within a reasonable time, any information which the Director or his designee may request to determine whether cause exists for modifying, revoking and re-issuing, suspending, or terminating this permit, in whole or in part, or to determine compliance with this permit.

5. Cooling Water and Boiler Water Additives

- a. The permittee shall notify the Director in writing not later than thirty (30) days prior to instituting the use of any biocide corrosion inhibitor or chemical additive in a cooling or boiler system, not identified in the application for this permit, from which discharge is allowed by this permit. Notification is not required for additives that do not contain a heavy metal(s) as an active ingredient and that pass through a wastewater treatment system prior to discharge nor is notification required for additives that should not reasonably be expected to cause the cooling water or boiler water to exhibit toxicity as determined by analysis of manufacturer's data or testing by the permittee. Such notification shall include:
 - (1) name and general composition of biocide or chemical;
 - (2) 96-hour median tolerance limit data for organisms representative of the biota of the waterway into which the discharge will ultimately reach;
 - (2) quantities to be used;
 - (3) frequencies of use;
 - (4) proposed discharge concentrations; and
 - (6) EPA registration number, if applicable.
- b. The use of a biocide or additive containing tributyl tin, tributyl tin oxide, zinc, chromium or related compounds in cooling or boiler system(s), from which a discharge regulated by this permit occurs, is prohibited except as exempted below. The use of a biocide or additive containing zinc, chromium or related compounds may be used in special circumstances if (1) the permit contains limits for these substances, or (2) the applicant demonstrates during the application process that the use of zinc, chromium or related compounds as a biocide or additive will not pose a reasonable potential to violate the applicable State water quality standards for these substances. The use of any additive, not identified in this permit or in the application for this permit or not exempted from notification under this permit is prohibited, prior to a determination by the Department that permit modification to control discharge of the additive is not required or prior to issuance of a permit modification controlling discharge of the additive.

6. Permit Issued Based On Estimated Characteristics

- a. If this permit was issued based on estimates of the characteristics of a process discharge reported on an EPA NPDES Application Form 2D (EPA Form 3510-2D), the permittee shall complete and submit an EPA NPDES Application Form 2C (EPA Form 3510-2C) no later than two years after the date that discharge begins. Sampling required for completion of the Form 2C shall occur when a discharge(s) from the process(s) causing the new or increased discharge is occurring. If this permit was issued based on estimates concerning the composition of a stormwater discharge(s), the permittee shall perform the sampling required by EPA NPDES Application Form 2F (EPA Form 3510-2F) no later than one year after the industrial activity generating the stormwater discharge has been fully initiated.

- b. This permit shall be reopened if required to address any new information resulting from the completion and submittal of the Form 2C and or 2F.

E. SCHEDULE OF COMPLIANCE

1. The permittee shall achieve compliance with the discharge limitations specified in Provision I. A. in accordance with the following schedule:

COMPLIANCE SHALL BE ATTAINED ON THE EFFECTIVE DATE OF THIS PERMIT

2. No later than 14 calendar days following a date identified in the above schedule of compliance, the permittee shall submit either a report of progress or, in the case of specific actions being required by identified dates, a written notice of compliance or noncompliance. In the latter case, the notice shall include the cause of noncompliance, any remedial actions taken, and the probability of meeting the next scheduled requirement.

PART II OTHER REQUIREMENTS, RESPONSIBILITIES, AND DUTIES

A. OPERATIONAL AND MANAGEMENT REQUIREMENTS

1. Facilities Operation and Maintenance

The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of the permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities only when necessary to achieve compliance with the conditions of the permit.

2. Best Management Practices

- a. Dilution water shall not be added to achieve compliance with discharge limitations except when the Director or his designee has granted prior written authorization for dilution to meet water quality requirements.
- b. The permittee shall prepare, implement, and maintain a Spill Prevention, Control and Countermeasures (SPCC) Plan in accordance with 40 C.F.R. Section 112 if required thereby.
- c. The permittee shall prepare, submit for approval and implement a Best Management Practices (BMP) Plan for containment of any or all process liquids or solids, in a manner such that these materials do not present a significant potential for discharge, if so required by the Director or his designee. When submitted and approved, the BMP Plan shall become a part of this permit and all requirements of the BMP Plan shall become requirements of this permit.

3. Spill Prevention, Control, and Management

The permittee shall provide spill prevention, control, and/or management sufficient to prevent any spills of pollutants from entering a water of the state or a publicly or privately owned treatment works. Any containment system used to implement this requirement shall be constructed of materials compatible with the substance(s) contained and which shall prevent the contamination of groundwater and such containment system shall be capable of retaining a volume equal to 110 percent of the capacity of the largest tank for which containment is provided.

B. OTHER RESPONSIBILITIES

1. Duty to Mitigate Adverse Impacts

The permittee shall promptly take all reasonable steps to mitigate and minimize or prevent any adverse impact on human health or the environment resulting from noncompliance with any discharge limitation specified in Provision I. A. of this permit, including such accelerated or additional monitoring of the discharge and/or the receiving waterbody as necessary to determine the nature and impact of the noncomplying discharge.

2. Right of Entry and Inspection

The permittee shall allow the Director, or an authorized representative, upon the presentation of proper credentials and other documents as may be required by law to:

- a. enter upon the permittee's premises where a regulated facility or activity or point source is located or conducted, or where records must be kept under the conditions of the permit;
- b. have access to and copy, at reasonable times, any records that must be kept under the conditions of the permit;
- c. inspect any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under the permit; and
- d. sample or monitor, for the purposes of assuring permit compliance or as otherwise authorized by the AWPCA, any substances or parameters at any location.

C. BYPASS AND UPSET

1. Bypass

- a. Any bypass is prohibited except as provided in b. and c. below:
- b. A bypass is not prohibited if:
 - (1) It does not cause any discharge limitation specified in Provision I. A. of this permit to be exceeded;

- (2) It enters the same receiving stream as the permitted outfall; and
 - (3) It is necessary for essential maintenance of a treatment or control facility or system to assure efficient operation of such facility or system.
- c. A bypass is not prohibited and need not meet the discharge limitations specified in Provision I. A. of this permit if:
- (1) It is unavoidable to prevent loss of life, personal injury, or severe property damage;
 - (2) There are no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime (this condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance); and
 - (3) The permittee submits a written request for authorization to bypass to the Director at least ten (10) days prior to the anticipated bypass (if possible), the permittee is granted such authorization, and the permittee complies with any conditions imposed by the Director to minimize any adverse impact on human health or the environment resulting from the bypass.
- d. The permittee has the burden of establishing that each of the conditions of Provision II.C.1.b. or c. have been met to qualify for an exception to the general prohibition against bypassing contained in a. and an exemption, where applicable, from the discharge limitations specified in Provision I. A. of this permit.
2. Upset
- a. A discharge which results from an upset need not meet the discharge limitations specified in Provision I. A. of this permit if:
- (1) No later than 24-hours after becoming aware of the occurrence of the upset, the permittee orally reports the occurrence and circumstances of the upset to the Director or his designee; and
 - (2) No later than five (5) days after becoming aware of the occurrence of the upset, the permittee furnishes the Director with evidence, including properly signed, contemporaneous operating logs, or other relevant evidence, demonstrating that (i) an upset occurred; (ii) the permittee can identify the specific cause(s) of the upset; (iii) the permittee's facility was being properly operated at the time of the upset; and (iv) the permittee promptly took all reasonable steps to minimize any adverse impact on human health or the environment resulting from the upset.
- b. The permittee has the burden of establishing that each of the conditions of Provision II. C.2.a. of this permit have been met to qualify for an exemption from the discharge limitations specified in Provision I.A. of this permit.

D. DUTY TO COMPLY WITH PERMIT, RULES, AND STATUTES

1. Duty to Comply
 - a. The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the AWPCA and the FWPCA and is grounds for enforcement action, for permit termination, revocation and reissuance, suspension, modification; or denial of a permit renewal application.
 - b. The necessity to halt or reduce production or other activities in order to maintain compliance with the conditions of the permit shall not be a defense for a permittee in an enforcement action.
 - c. The discharge of a pollutant from a source not specifically identified in the permit application for this permit and not specifically included in the description of an outfall in this permit is not authorized and shall constitute noncompliance with this permit.
 - d. The permittee shall take all reasonable steps, including cessation of production or other activities, to minimize or prevent any violation of this permit or to minimize or prevent any adverse impact of any permit violation.
 - e. Nothing in this permit shall be construed to preclude and negate the permittee's responsibility or liability to apply for, obtain, or comply with other ADEM, Federal, State, or Local Government permits, certifications, licenses, or other approvals.
2. Removed Substances

Solids, sludges, filter backwash, or any other pollutant or other waste removed in the course of treatment or control of wastewaters shall be disposed of in a manner that complies with all applicable Department Rules.

3. Loss or Failure of Treatment Facilities

Upon the loss or failure of any treatment facilities, including but not limited to the loss or failure of the primary source of power of the treatment facility, the permittee shall, where necessary to maintain compliance with the discharge limitations specified in Provision I. A. of this permit, or any other terms or conditions of this permit, cease, reduce, or otherwise control production and/or all discharges until treatment is restored. If control of discharge during loss or failure of the primary source of power is to be accomplished by means of alternate power sources, standby generators, or retention of inadequately treated effluent, the permittee must furnish to the Director within six months a certification that such control mechanisms have been installed.

4. Compliance with Statutes and Rules

- a. This permit has been issued under ADEM Administrative Code, Chapter 335-6-6. All provisions of this chapter, that are applicable to this permit, are hereby made a part of this permit. A copy of this chapter may be obtained for a small charge from the Office of General Counsel, Alabama Department of Environmental Management, 1400 Coliseum Blvd., Montgomery, AL 36130.
- b. This permit does not authorize the noncompliance with or violation of any Laws of the State of Alabama or the United States of America or any regulations or rules implementing such laws. FWPCA, 33 U.S.C. Section 1319, and Code of Alabama 1975, Section 22-22-14.

E. PERMIT TRANSFER, MODIFICATION, SUSPENSION, REVOCATION, AND REISSUANCE

1. Duty to Reapply or Notify of Intent to Cease Discharge

- a. If the permittee intends to continue to discharge beyond the expiration date of this permit, the permittee shall file a complete permit application for reissuance of this permit at least 180 days prior to its expiration. If the permittee does not intend to continue discharge beyond the expiration of this permit, the permittee shall submit written notification of this intent which shall be signed by an individual meeting the signatory requirements for a permit application as set forth in ADEM Administrative Code Rule 335-6-6-.09.
- b. Failure of the permittee to apply for reissuance at least 180 days prior to permit expiration will void the automatic continuation of the expiring permit provided by ADEM Administrative Code Rule 335-6-6-.06 and should the permit not be reissued for any reason any discharge after expiration of this permit will be an unpermitted discharge.

2. Change in Discharge

- a. The permittee shall apply for a permit modification at least 180 days in advance of any facility expansion, production increase, process change, or other action that could result in the discharge of additional pollutants or increase the quantity of a discharged pollutant such that existing permit limitations would be exceeded or that could result in an additional discharge point. This requirement applies to pollutants that are or that are not subject to discharge limitations in this permit. No new or increased discharge may begin until the Director has authorized it by issuance of a permit modification or a reissued permit.
- b. The permittee shall notify the Director as soon as it is known or there is reason to believe:
 - (1) That any activity has occurred or will occur which would result in the discharge on a routine or frequent basis, of any toxic pollutant which is not limited in this permit, if that discharge will exceed the highest of the following notification levels:
 - (a) one hundred micrograms per liter;
 - (b) two hundred micrograms per liter for acrolein and acrylonitrile; five hundred micrograms per liter for 2,4-dinitrophenol and for 2-methyl-4,6-dini-trophenol; and one milligram per liter for antimony;
 - (c) five times the maximum concentration value reported for that pollutant in the permit application; or
 - (2) That any activity has occurred or will occur which would result in any discharge, on a non-routine or infrequent basis, of a toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following notification levels:
 - (a) five hundred micrograms per liter;
 - (b) one milligram per liter for antimony;
 - (c) ten times the maximum concentration value reported for that pollutant in the permit application.

3. Transfer of Permit

This permit may not be transferred or the name of the permittee changed without notice to the Director and subsequent modification or revocation and reissuance of the permit to identify the new permittee and to incorporate any other changes as may be required under the FWPCA or AWPCA. In the case of a change in name, ownership or control of the permittee's premises only, a request for permit modification in a format acceptable to the Director is required at least 30 days prior to the change. In the case of a change in name, ownership or control of the permittee's premises accompanied by a change or proposed change in effluent characteristics, a complete permit application is required to be submitted to the Director at least 180 days prior to the change. Whenever the Director is notified of a change in name, ownership or control, he may decide not to modify the existing permit and require the submission of a new permit application.

4. Permit Modification and Revocation

a. This permit may be modified or revoked and reissued, in whole or in part, during its term for cause, including but not limited to, the following:

- (1) If cause for termination under Provision II. E. 5. of this permit exists, the Director may choose to revoke and reissue this permit instead of terminating the permit;
- (2) If a request to transfer this permit has been received, the Director may decide to revoke and reissue or to modify the permit; or
- (3) If modification or revocation and reissuance is requested by the permittee and cause exists, the Director may grant the request.

b. This permit may be modified during its term for cause, including but not limited to, the following:

- (1) If cause for termination under Provision II. E. 5. of this permit exists, the Director may choose to modify this permit instead of terminating this permit;
- (2) There are material and substantial alterations or additions to the facility or activity generating wastewater which occurred after permit issuance which justify the application of permit conditions that are different or absent in the existing permit;
- (3) The Director has received new information that was not available at the time of permit issuance and that would have justified the application of different permit conditions at the time of issuance;
- (4) A new or revised requirement(s) of any applicable standard or limitation is promulgated under Sections 301(b)(2)(C), (D), (E), and (F), and 307(a)(2) of the FWPCA;
- (5) Errors in calculation of discharge limitations or typographical or clerical errors were made;
- (6) To the extent allowed by ADEM Administrative Code, Rule 335-6-6-.17, when the standards or regulations on which the permit was based have been changed by promulgation of amended standards or regulations or by judicial decision after the permit was issued;
- (7) To the extent allowed by ADEM Administrative Code, Rule 335-6-6-.17, permits may be modified to change compliance schedules;
- (8) To agree with a granted variance under 301(c), 301(g), 301(h), 301(k), or 316(a) of the FWPCA or for fundamentally different factors;
- (9) To incorporate an applicable 307(a) FWPCA toxic effluent standard or prohibition;
- (10) When required by the reopener conditions in this permit;
- (11) When required under 40 CFR 403.8(e) (compliance schedule for development of pretreatment program);
- (12) Upon failure of the state to notify, as required by Section 402(b)(3) of the FWPCA, another state whose waters may be affected by a discharge permitted by this permit;
- (13) When required to correct technical mistakes, such as errors in calculation, or mistaken interpretations of law made in determining permit conditions; or
- (14) When requested by the permittee and the Director determines that the modification has cause and will not result in a violation of federal or state law, regulations or rules.

5. Permit Termination

This permit may be terminated during its term for cause, including but not limited to, the following:

- a. Violation of any term or condition of this permit;
- b. The permittee's misrepresentation or failure to disclose fully all relevant facts in the permit application or during the permit issuance process or the permittee's misrepresentation of any relevant facts at any time;
- c. Materially false or inaccurate statements or information in the permit application or the permit;
- d. A change in any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge;
- e. The permittee's discharge threatens human life or welfare or the maintenance of water quality standards;
- f. Permanent closure of the facility generating the wastewater permitted to be discharged by this permit or permanent cessation of wastewater discharge;
- g. New or revised requirements of any applicable standard or limitation that is promulgated under Sections 301(b)(2)(C), (D), (E), and (F), and 307(a)(2) of the FWPCA that the Director determines cannot be complied with by the permittee; or
- h. Any other cause allowed by the ADEM Administrative Code, Chapter 335-6-6.

6. Permit Suspension

This permit may be suspended during its term for noncompliance until the permittee has taken action(s) necessary to achieve compliance.

7. Request for Permit Action Does Not Stay Any Permit Requirement

The filing of a request by the permittee for modification, suspension or revocation of this permit, in whole or in part, does not stay any permit term or condition.

F. COMPLIANCE WITH TOXIC POLLUTANT STANDARD OR PROHIBITION

If any applicable effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is established under Section 307(a) of the FWPCA, 33 U.S.C. Section 1317(a), for a toxic pollutant discharged by the permittee and such standard or prohibition is more stringent than any discharge limitation on the pollutant specified in Provision I. A. of this permit, or controls a pollutant not limited in Provision I. A. of this permit, this permit shall be modified to conform to the toxic pollutant effluent standard or prohibition and the permittee shall be notified of such modification. If this permit has not been modified to conform to the toxic pollutant effluent standard or prohibition before the effective date of such standard or prohibition, the permittee shall attain compliance with the requirements of the standard or prohibition within the time period required by the standard or prohibition and shall continue to comply with the standard or prohibition until this permit is modified or reissued.

G. DISCHARGE OF WASTEWATER GENERATED BY OTHERS

The discharge of wastewater, generated by any process, facility, or by any other means not under the operational control of the permittee or not identified in the application for this permit or not identified specifically in the description of an outfall in this permit is not authorized by this permit.

PART III OTHER PERMIT CONDITIONS

A. CIVIL AND CRIMINAL LIABILITY

1. Tampering

Any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained or performed under the permit shall, upon conviction, be subject to penalties as provided by the AWPCA.

2. False Statements

Any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance shall, upon conviction, be subject to penalties as provided by the AWPCA.

3. Permit Enforcement

a. Any NPDES permit issued or reissued by the Department is a permit for the purpose of the AWPCA and the FWPCA and as such any terms, conditions, or limitations of the permit are enforceable under state and federal law.

b. Any person required to have a NPDES permit pursuant to ADEM Administrative Code Chapter 335-6-6 and who discharges pollutants without said permit, who violates the conditions of said permit, who discharges pollutants in a manner not authorized by the permit, or who violates applicable orders of the Department or any applicable rule or standard of the Department, is subject to any one or combination of the following enforcement actions under applicable state statutes.

(1) An administrative order requiring abatement, compliance, mitigation, cessation, clean-up, and/or penalties;

(2) An action for damages;

(3) An action for injunctive relief; or

(4) An action for penalties.

c. If the permittee is not in compliance with the conditions of an expiring or expired permit the Director may choose to do any or all of the following provided the permittee has made a timely and complete application for reissuance of the permit:

(1) initiate enforcement action based upon the permit which has been continued;

(2) issue a notice of intent to deny the permit reissuance. If the permit is denied, the owner or operator would then be required to cease the activities authorized by the continued permit or be subject to enforcement action for operating without a permit;

(3) reissue the new permit with appropriate conditions; or

(4) take other actions authorized by these rules and AWPCA.

4. Relief from Liability

Except as provided in Provision II.C.1 (Bypass) and Provision II.C.2 (Upset), nothing in this permit shall be construed to relieve the permittee of civil or criminal liability under the AWPCA or FWPCA for noncompliance with any term or condition of this permit.

B. OIL AND HAZARDOUS SUBSTANCE LIABILITY

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities or penalties to which the permittee is or may be subject under Section 311 of the FWPCA, 33 U.S.C. Section 1321.

C. PROPERTY AND OTHER RIGHTS

This permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to persons or property or invasion of other private rights, trespass, or any infringement of federal, state, or local laws or regulations, nor does it authorize or approve the construction of any physical structures or facilities or the undertaking of any work in any waters of the state or of the United States.

D. AVAILABILITY OF REPORTS

Except for data determined to be confidential under Code of Alabama 1975, Section 22-22-9(c), all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Department. Effluent data shall not be considered confidential.

E. EXPIRATION OF PERMITS FOR NEW OR INCREASED DISCHARGES

1. If this permit was issued for a new discharger or new source, this permit shall expire eighteen months after the issuance date if construction of the facility has not begun during the eighteen-month period.
2. If this permit was issued or modified to allow the discharge of increased quantities of pollutants to accommodate the modification of an existing facility and if construction of this modification has not begun during the eighteen month period after issuance of this permit or permit modification, this permit shall be modified to reduce the quantities of pollutants allowed to be discharged to those levels that would have been allowed if the modification of the facility had not been planned.
3. Construction has begun when the owner or operator has:
 - a. begun, or caused to begin as part of a continuous on-site construction program:
 - (1) any placement, assembly, or installation of facilities or equipment; or
 - (2) significant site preparation work including clearing, excavation, or removal of existing buildings, structures, or facilities which is necessary for the placement, assembly, or installation of new source facilities or equipment; or
 - b. entered into a binding contractual obligation for the purpose of placement, assembly, or installation of facilities or equipment which are intended to be used in its operation within a reasonable time. Options to purchase or contracts which can be terminated or modified without substantial loss, and contracts for feasibility, engineering, and design studies do not constitute a contractual obligation under the paragraph. The entering into a lease with the State of Alabama for exploration and production of hydrocarbons shall also be considered beginning construction.

F. COMPLIANCE WITH WATER QUALITY STANDARDS

1. On the basis of the permittee's application, plans, or other available information, the Department has determined that compliance with the terms and conditions of this permit should assure compliance with the applicable water quality standards.
2. Compliance with permit terms and conditions notwithstanding, if the permittee's discharge(s) from point sources identified in Provision I. A. of this permit cause or contribute to a condition in contravention of state water quality standards, the Department may require abatement action to be taken by the permittee in emergency situations or modify the permit pursuant to the Department's Rules, or both.
3. If the Department determines, on the basis of a notice provided pursuant to this permit or any investigation, inspection or sampling, that a modification of this permit is necessary to assure maintenance of water quality standards or compliance with other provisions of the AWPCA or FWPCA, the Department may require such modification and, in cases of emergency, the Director may prohibit the discharge until the permit has been modified.

G. GROUNDWATER

Unless specifically authorized under this permit, this permit does not authorize the discharge of pollutants to groundwater. Should a threat of groundwater contamination occur, the Director may require groundwater monitoring to properly assess the degree of the problem and the Director may require that the Permittee undertake measures to abate any such discharge and/or contamination.

H. DEFINITIONS

2. Average monthly discharge limitation - means the highest allowable average of "daily discharges" over a calendar month, calculated as the sum of all "daily discharges" measured during a calendar month divided by the number of "daily discharges" measured during that month (zero discharge days shall not be included in the number of "daily discharges" measured and a less than detectable test result shall be treated as a concentration of zero if the most sensitive EPA approved method was used).
3. Average weekly discharge limitation - means the highest allowable average of "daily discharges" over a calendar week, calculated as the sum of all "daily discharges" measured during a calendar week divided by the number of "daily discharges" measured during that week (zero discharge days shall not be included in the number of "daily discharges" measured and a less than detectable test result shall be treated as a concentration of zero if the most sensitive EPA approved method was used).
4. Arithmetic Mean – means the summation of the individual values of any set of values divided by the number of individual values.

5. AWPCA - means the Alabama Water Pollution Control Act.
6. BOD – means the five-day measure of the pollutant parameter biochemical oxygen demand.
7. Bypass - means the intentional diversion of waste streams from any portion of a treatment facility.
8. CBOD – means the five-day measure of the pollutant parameter carbonaceous biochemical oxygen demand.
9. Daily discharge - means the discharge of a pollutant measured during any consecutive 24-hour period in accordance with the sample type and analytical methodology specified by the discharge permit.
10. Daily maximum - means the highest value of any individual sample result obtained during a day.
11. Daily minimum - means the lowest value of any individual sample result obtained during a day.
12. Day - means any consecutive 24-hour period.
13. Department - means the Alabama Department of Environmental Management.
14. Director - means the Director of the Department.
15. Discharge - means "[t]he addition, introduction, leaking, spilling or emitting of any sewage, industrial waste, pollutant or other wastes into waters of the state". Code of Alabama 1975, Section 22-22-1(b)(8).
16. Discharge Monitoring Report (DMR) - means the form approved by the Director to accomplish reporting requirements of an NPDES permit.
17. DO – means dissolved oxygen.
18. 8HC – means 8-hour composite sample, including any of the following:
 - a. The mixing of at least 5 equal volume samples collected at constant time intervals of not more than 2 hours over a period of not less than 8 hours between the hours of 6:00 a.m. and 6:00 p.m. If the sampling period exceeds 8 hours, sampling may be conducted beyond the 6:00 a.m. to 6:00 p.m. period.
 - b. A sample continuously collected at a constant rate over period of not less than 8 hours between the hours of 6:00 a.m. and 6:00 p.m. If the sampling period exceeds 8 hours, sampling may be conducted beyond the 6:00 a.m. to 6:00 p.m. period.
19. EPA - means the United States Environmental Protection Agency.
20. FC – means the pollutant parameter fecal coliform.
21. Flow – means the total volume of discharge in a 24-hour period.
22. FWPCA - means the Federal Water Pollution Control Act.
23. Geometric Mean – means the Nth root of the product of the individual values of any set of values where N is equal to the number of individual values. The geometric mean is equivalent to the antilog of the arithmetic mean of the logarithms of the individual values. For purposes of calculating the geometric mean, values of zero (0) shall be considered one (1).
24. Grab Sample – means a single influent or effluent portion which is not a composite sample. The sample(s) shall be collected at the period(s) most representative of the discharge.
25. Indirect Discharger – means a nondomestic discharger who discharges pollutants to a publicly owned treatment works or a privately owned treatment facility operated by another person.
26. Industrial User – means those industries identified in the Standard Industrial Classification manual, Bureau of the Budget 1967, as amended and supplemented, under the category “Division D – Manufacturing” and such other classes of significant waste producers as, by regulation, the Director deems appropriate.
27. MGD – means million gallons per day.
28. Monthly Average – means, other than for fecal coliform bacteria, the arithmetic mean of the entire composite or grab samples taken for the daily discharges collected in one month period. The monthly average for fecal coliform bacteria is the geometric mean of daily discharge samples collected in a one month period. The monthly average for flow is the arithmetic mean of all flow measurements taken in a one month period.

29. New Discharger – means a person, owning or operating any building, structure, facility or installation:
 - a. from which there is or may be a discharge of pollutants;
 - b. that did not commence the discharge of pollutants prior to August 13, 1979, and which is not a new source; and
 - c. which has never received a final effective NPDES permit for dischargers at that site.
30. NH3-N – means the pollutant parameter ammonia, measured as nitrogen.
31. Permit application - means forms and additional information that is required by ADEM Administrative Code Rule 335-6-6-.08 and applicable permit fees.
32. Point source - means "any discernible, confined and discrete conveyance, including but not limited to any pipe, channel, ditch, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, . . . from which pollutants are or may be discharged." Section 502(14) of the FWPCA, 33 U.S.C. Section 1362(14).
33. Pollutant - includes for purposes of this permit, but is not limited to, those pollutants specified in Code of Alabama 1975, Section 22-22-1(b)(3) and those effluent characteristics specified in Provision I. A. of this permit.
34. Privately Owned Treatment Works – means any devices or system which is used to treat wastes from any facility whose operator is not the operator of the treatment works, and which is not a "POTW".
35. Publicly Owned Treatment Works – means a wastewater collection and treatment facility owned by the State, municipality, regional entity composed of two or more municipalities, or another entity created by the State or local authority for the purpose of collecting and treating municipal wastewater.
36. Receiving Stream – means the "waters" receiving a "discharge" from a "point source".
37. Severe property damage - means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.
38. Significant Source – means a source which discharges 0.025 MGD or more to a POTW or greater than five percent of the treatment work's capacity, or a source which is a primary industry as defined by the U.S. EPA or which discharges a priority or toxic pollutant.
39. Solvent – means any virgin, used or spent organic solvent(s) identified in the F-Listed wastes (F001 through F005) specified in 40 CFR 261.31 that is used for the purpose of solubilizing other materials.
40. TKN – means the pollutant parameter Total Kjeldahl Nitrogen.
41. TON – means the pollutant parameter Total Organic Nitrogen.
42. TRC – means Total Residual Chlorine.
43. TSS – means the pollutant parameter Total Suspended Solids.
44. 24HC – means 24-hour composite sample, including any of the following:
 - a. the mixing of at least 12 equal volume samples collected at constant time intervals of not more than 2 hours over a period of 24 hours;
 - b. a sample collected over a consecutive 24-hour period using an automatic sampler composite to one sample. As a minimum, samples shall be collected hourly and each shall be no more than one twenty-fourth (1/24) of the total sample volume collected; or
 - c. a sample collected over a consecutive 24-hour period using an automatic composite sampler composited proportional to flow.
45. Upset - means an exceptional incident in which there is an unintentional and temporary noncompliance with technology-based permit discharge limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

46. Waters - means "[a]ll waters of any river, stream, watercourse, pond, lake, coastal, ground or surface water, wholly or partially within the state, natural or artificial. This does not include waters which are entirely confined and retained completely upon the property of a single individual, partnership or corporation unless such waters are used in interstate commerce." Code of Alabama 1975, Section 22-22-1(b)(2). Waters "include all navigable waters" as defined in Section 502(7) of the FWPCA, 22 U.S.C. Section 1362(7), which are within the State of Alabama.
47. Week - means the period beginning at twelve midnight Saturday and ending at twelve midnight the following Saturday.
48. Weekly (7-day and calendar week) Average – is the arithmetic mean of all samples collected during a consecutive 7-day period or calendar week, whichever is applicable. The calendar week is defined as beginning on Sunday and ending on Saturday. Weekly averages shall be calculated for all calendar weeks with Saturdays in the month. If a calendar week overlaps two months (i.e., the Sunday is in one month and the Saturday in the following month), the weekly average calculated for the calendar week shall be included in the data for the month that contains the Saturday.

I. SEVERABILITY

The provisions of this permit are severable, and if any provision of this permit or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

PART IV ADDITIONAL REQUIREMENTS, CONDITIONS, AND LIMITATIONS

A. BEST MANAGEMENT PRACTICES (BMP) PLAN REQUIREMENTS

1. BMP Plan

The permittee shall develop and implement a Best Management Practices (BMP) Plan which prevents, or minimizes the potential for, the release of pollutants from ancillary activities, including material storage areas; plant site runoff; in-plant transfer, process and material handling areas; loading and unloading operations, and sludge and waste disposal areas, to the waters of the State through plant site runoff; spillage or leaks; sludge or waste disposal; or drainage from raw material storage.

2. Plan Content

The permittee shall prepare and implement a best management practices (BMP) plan, which shall:

- a. Establish specific objectives for the control of pollutants:
 - (1) Each facility component or system shall be examined for its potential for causing a release of significant amounts of pollutants to waters of the State due to equipment failure, improper operation, natural phenomena such as rain or snowfall, etc.
 - (2) Where experience indicates a reasonable potential for equipment failure (e.g., a tank overflow or leakage), natural condition (e.g. precipitation), or circumstances to result in significant amounts of pollutants reaching surface waters, the plan should include a prediction of the direction, rate of flow, and total quantity of pollutants which could be discharged from the facility as a result of each condition or circumstance.
- b. Establish specific best management practices to meet the objectives identified under paragraph a. of this section, addressing each component or system capable of causing a release of significant amounts of pollutants to the waters of the State, and identifying specific preventative or remedial measures to be implemented;
- c. Establish a program to identify and repair leaking equipment items and damaged containment structures, which may contribute to contaminated stormwater runoff. This program must include regular visual inspections of equipment, containment structures and of the facility in general to ensure that the BMP is continually implemented and effective;
- d. Prevent the spillage or loss of fluids, oil, grease, gasoline, etc. from vehicle and equipment maintenance activities and thereby prevent the contamination of stormwater from these substances;
- e. Prevent or minimize stormwater contact with material stored on site;
- f. Designate by position or name the person or persons responsible for the day to day implementation of the BMP;
- g. Provide for routine inspections, on days during which the facility is manned, of any structures that function to prevent stormwater pollution or to remove pollutants from stormwater and of the facility in general to ensure that the BMP is continually implemented and effective;
- h. Provide for the use and disposal of any material used to absorb spilled fluids that could contaminate stormwater;
- i. Develop a solvent management plan, if solvents are used on site. The solvent management plan shall include as a minimum lists of the solvents on site; the disposal method of solvents used instead of dumping, such as reclamation, contract hauling; and the procedures for assuring that solvents do not routinely spill or leak into the stormwater;
- j. Provide for the disposal of all used oils, hydraulic fluids, solvent degreasing material, etc. in accordance with good management practices and any applicable state or federal regulations;
- k. Include a diagram of the facility showing the locations where stormwater exits the facility, the locations of any structure or other mechanisms intended to prevent pollution of stormwater or to remove pollutants from stormwater, the locations of any collection and handling systems;
- l. Provide control sufficient to prevent or control pollution of stormwater by soil particles to the degree required to maintain compliance with the water quality standard for turbidity applicable to the waterbody(s) receiving discharge(s) under this permit;
- m. Provide spill prevention, control, and/or management sufficient to prevent or minimize contaminated stormwater runoff. Any containment system used to implement this requirement shall be constructed of materials compatible with the substance(s) contained and shall prevent the contamination of groundwater. The containment system shall also be capable of retaining a volume equal to 110 percent of the capacity of the largest tank for which containment is provided;

- n. Provide and maintain curbing, diking or other means of isolating process areas to the extent necessary to allow segregation and collection for treatment of contaminated stormwater from process areas;
- o. Be reviewed by plant engineering staff and the plant manager; and
- p. Bear the signature of the plant manager.

3. Compliance Schedule

The permittee shall have reviewed (and revised if necessary) and fully implemented the BMP plan as soon as practicable but no later than six months after the effective date of this permit.

4. Department Review

- a. When requested by the Director or his designee, the permittee shall make the BMP available for Department review.
- b. The Director or his designee may notify the permittee at any time that the BMP is deficient and require correction of the deficiency.
- c. The permittee shall correct any BMP deficiency identified by the Director or his designee within 30 days of receipt of notification and shall certify to the Department that the correction has been made and implemented.

5. Administrative Procedures

- a. A copy of the BMP shall be maintained at the facility and shall be available for inspection by representatives of the Department.
- b. A log of the routine inspection required above shall be maintained at the facility and shall be available for inspection by representatives of the Department. The log shall contain records of all inspections performed for the last three years and each entry shall be signed by the person performing the inspection.
- c. The permittee shall provide training for any personnel required to implement the BMP and shall retain documentation of such training at the facility. This documentation shall be available for inspection by representatives of the Department. Training shall be performed prior to the date that implementation of the BMP is required.
- d. BMP Plan Modification. The permittee shall amend the BMP plan whenever there is a change in the facility or change in operation of the facility which materially increases the potential for the ancillary activities to result in a discharge of significant amounts of pollutants.
- e. BMP Plan Review. The permittee shall complete a review and evaluation of the BMP plan at least once every three years from the date of preparation of the BMP plan. Documentation of the BMP Plan review and evaluation shall be signed and dated by the Plant Manager.

B. STORMWATER FLOW MEASUREMENT AND SAMPLING REQUIREMENTS

1. Stormwater Flow Measurement

- a. All stormwater samples shall be collected from the discharge resulting from a storm event that is greater than 0.1 inches.
- b. The total volume of stormwater discharged for the event must be monitored, including the date and duration (in hours) and rainfall (in inches) for storm event(s) sampled. The duration between the storm event sampled and the end of the previous measurable (greater than 0.1 inch rainfall) storm event must be a minimum of 72 hours. This information must be recorded as part of the sampling procedure and records retained according to Part I.B. of this permit.
- c. The volume may be measured using flow measuring devices, or estimated based on a modification of the Rational Method using total depth of rainfall, the size of the drainage area serving a stormwater outfall, and an estimate of the runoff coefficient of the drainage area. This information must be recorded as part of the sampling procedure and records retained according to Part I.B. of this permit.

2. Stormwater Sampling

- a. A grab sample, if required by this permit, shall be taken during the first thirty minutes of the discharge (or as soon thereafter as practicable); and a flow-weighted composite sample, if required by this permit, shall be taken for the entire event or for the first three hours of the event.

- b. All test procedures will be in accordance with part I.B. of this permit.

C. EFFLUENT TOXICITY LIMITATIONS AND BIOMONITORING REQUIREMENTS

1. The permittee shall perform 48-hour acute toxicity tests on the wastewater discharges required to be tested for acute toxicity by Part I of this permit.

a. Test Requirements

- (1) The samples shall be diluted using an appropriate control water, to the Instream Waste Concentration (IWC) which is 11.1% effluent. The IWC is the actual concentration of effluent, after mixing, in the receiving stream during a 1-day, 10-year flow period.
- (2) The samples shall be representative of the combined discharge flow from Outokumpu Stainless (AL0079901) and AM/NS Calvert (AL0080233). The samples may be taken after the flows combine from each facility or prior to commingling in which the samples must be flow-weighted based on the actual flow from each facility during the sampling period.
- (3) Any test where survival in the effluent concentration is less than 90% and statistically lower than the control indicates acute toxicity and constitutes noncompliance with this permit.

b. General Test Requirements:

- (1) A 24-hour composite sample shall be obtained for use in above biomonitoring tests. The holding time for each sample shall not exceed 36 hours. The control water shall be a water prepared in the laboratory in accordance with the EPA procedure described in EPA 821-R-02-012 or most current edition or another control water selected by the permittee and approved by the Department.

Effluent toxicity tests in which the control survival is less than 90% or in which the other requirements of the EPA Test Procedure are not met shall be unacceptable and the permittee shall rerun the tests as soon as practical within the monitoring period.

In the event of an invalid test, upon subsequent completion of a valid test, the results of all tests, valid and invalid, are reported with an explanation of the tests performed and results.

c. Reporting Requirements:

- (1) The permittee shall notify the Department in writing within 48 hours after toxicity has been demonstrated by the scheduled test(s).
- (2) Biomonitoring test results obtained during each monitoring period shall be summarized and reported using the appropriate Discharge Monitoring Report (DMR) form approved by the Department. In accordance with Section 2. of this part, an effluent toxicity report containing the information in Section 2. shall be included with the DMR. Two copies of the test results must be submitted to the Department no later than 28 days after the month in which the tests were performed.

d. Additional Testing Requirements:

- (1) If acute toxicity is indicated (noncompliance with permit limit), the permittee shall perform four additional valid acute toxicity tests in accordance with these procedures to determine the extent and duration of the toxic condition. The toxicity tests shall be performed once per week and shall be performed during the first four calendar weeks following the date on which the permittee became aware of the permit noncompliance and the results of these tests shall be submitted no later than 28 days following the month in which the tests were performed.
- (2) After evaluation of the results of the follow-up tests, the Department will determine if additional action is appropriate and may require additional testing and/or toxicity reduction measures. The permittee may be required to perform a Toxicity Identification Evaluation (TIE) and/or a Toxicity Reduction Evaluation (TRE). The TIE/TRE shall be performed in accordance with the most recent protocols/guidance outlined by EPA (e.g., EPA/600/2-88/062, EPA/600/R-92/080, EPA/600R-92/081, EPA/833/B-99/022 and/or EPA/600/6-91/005F, etc.).

e. Test Methods:

- (1) The tests shall be performed in accordance with the latest edition of the "EPA Methods for Measuring the Acute Toxicity of Effluents to Freshwater and Marine Organisms" and shall be performed using the fathead minnow (*Pimephales promelas*) and the cladoceran (*Ceriodaphnia dubia*).

2. Effluent toxicity testing reports

The following information shall be submitted with each discharge monitoring report unless otherwise directed by the Department. The Department may at any time suspend or reinstate this requirement or may increase or decrease the frequency of submittals.

a. Introduction

- (1) Facility Name, location and county
- (2) Permit number
- (3) Toxicity testing requirements of permit
- (4) Name of receiving water body
- (5) Contract laboratory information (if tests are performed under contract)
 - (a) Name of firm
 - (b) Telephone number
 - (c) Address
- (6) Objective of test

b. Plant Operations

- (1) Discharge operating schedule (if other than continuous)
- (2) Volume of discharge during sample collection to include Mean daily discharge on sample collection date (MGD, CFS, GPM)
- (3) Design flow of treatment facility at time of sampling

c. Source of Effluent and Dilution Water

- (1) Effluent samples
 - (a) Sampling point
 - (b) Sample collection dates and times (to include composite sample start and finish times)
 - (c) Sample collection method
 - (d) Physical and chemical data of undiluted effluent samples (water temperature, pH, alkalinity, hardness, specific conductance, total residual chlorine (if applicable), etc.)
 - (e) Sample temperature when received at the laboratory
 - (f) Lapsed time from sample collection to delivery
 - (g) Lapsed time from sample collection to test initiation
- (2) Dilution Water Samples
 - (a) Source
 - (b) Collection date(s) and time(s) (where applicable)
 - (c) Pretreatment
 - (d) Physical and chemical characteristics (pH, hardness, water temperature, alkalinity, specific conductance, etc.)

d. Test Conditions

- (1) Toxicity test method utilized

- (2) End point(s) of test
 - (3) Deviations from referenced method, if any, and reason(s)
 - (4) Date and time test started
 - (5) Date and time test terminated
 - (6) Type and volume of test chambers
 - (7) Volume of solution per chamber
 - (8) Number of organisms per test chamber
 - (9) Number of replicate test chambers per treatment
 - (10) Test temperature, pH and dissolved oxygen as recommended by the method (to include ranges)
 - (11) Feeding frequency, and amount and type of food
 - (12) Light intensity (mean)
- e. Test Organisms
- (1) Scientific name
 - (2) Life stage and age
 - (3) Source
 - (4) Disease treatment (if applicable)
- f. Quality Assurance
- (1) Reference toxicant utilized and source
 - (2) Date and time of most recent acute reference toxicant test(s), raw data, and current cusum chart(s)
 - (3) Dilution water utilized in reference toxicant test
 - (4) Results of reference toxicant test(s) (LC50, etc.), report concentration-response relationship and evaluate test sensitivity. The most recent reference toxicant test shall be conducted within 30-days of the routine.
 - (5) Physical and chemical methods utilized
- g. Results
- (1) Provide raw toxicity data in tabular form, including daily records of affected organisms in each concentration (including controls) and replicate
 - (2) Provide table of endpoints: LC50, NOAEC, Pass/Fail (as required in the applicable NPDES permit)
 - (3) Indicate statistical methods used to calculate endpoints
 - (4) Provide all physical and chemical data required by method
 - (5) Results of test(s) (LC50, NOAEC, Pass/Fail, etc.), report concentration-response relationship (**definitive test only**), report percent minimum significant difference (PMSD).
- h. Conclusions and Recommendations
- (1) Relationship between test endpoints and permit limits
 - (2) Action to be taken

D. COOLING WATER INTAKE STRUCTURE (CWIS) REQUIREMENTS

The Permittee receives its cooling water from Outokumpu Stainless USA whose intake structure has been determined to meet the BTA requirements in accordance with section 316 (b) of the federal Clean Water Act.

E. TOTAL TOXIC ORGANIC (TTO) REQUIREMENTS

Total Toxic Organics (TTO) shall be defined as found in the applicable regulation (e.g., 40 CFR Parts 413, 433, 464, 465, 467, 468, or 469). TTO monitoring shall be necessary only for those compounds which are possibly present as a result of screening analyses, and/or a detailed review of TTO sources used in the facility. Annual certification shall be submitted by the permittee in January that the TTO parameters tested during the previous calendar year were those which could reasonably be expected as a result of screening analyses and/or presence of the TTO compound on-site. In addition to TTO monitoring, the Director or his designee may require that the permittee prepare and submit for approval and implementation a toxic organic management plan *[or solvent management plan]*.

In lieu of TTO monitoring, facilities subject to 40 CFR Part 413, 433, and 469 may submit a toxic organics management plan *[or solvent management plan]* which identifies toxic organic compounds used, the method of disposal used instead of discharge (such as reclamation, contract hauling or incineration) and procedures used for ensuring that toxic organics do not routinely spill or leak into the wastewater. The Department shall review the plan and initial TTO analysis, and if the plan is approved, the plan and any Department comments shall become a requirement of this permit. If design or construction is needed for the plan, engineering plans and specifications shall be submitted to the Department for review.

Should toxic organic pollutant levels be sufficiently low for those facilities subject to 40 CFR Part 413, 433, or 469 and the toxic organic management plan *[or solvent management plan]* is approved by the Department, the Department may waive further monitoring requirements provided all monitoring reports submitted thereafter include the following certification to be included as a "comment" on the Discharge Monitoring Report required by 40 CFR 122.44(i), formerly 40 CFR 122.62(i):

"Based on my inquiry of the person or persons directly responsible for managing compliance with the permit limitation [or pretreatment standard] for total toxic organics (TTO), I certify that, to the best of my knowledge and belief, no dumping of concentrated toxic organics into the wastewaters has occurred since filing of the last discharge monitoring report. I further certify that this facility is implementing the toxic organic management plan *[or solvent management plan]* submitted to the permitting (or control) authority."

Should in-plant conditions change such that the toxic organic management plan *[or solvent management plan]* is no longer valid (i.e., spill containment is modified, toxic organic compounds used are changed, etc.), a modified plan and implementation schedule shall be submitted 90 days prior to such change and must be approved by the Department to again discontinue TTO monitoring. In any event, the toxic organic management plan *[or solvent management plan]* shall be reviewed and updated at least yearly after approval by the Department, to assure that the plan is still valid and meets the intent of this permit. Such review and update shall include, but not be limited to, a review of toxic organics used, containment provisions for each, and a physical examination of all components of the containment or management system used. Records of this yearly review shall be maintained by the permittee for a minimum of three years.

Discharge of TTO to any waste stream limited by this permit shall in no case be intentional, unless the waste treatment system is designed to remove TTO, and such discharge has been specifically approved by the ADEM Water Division.

)

F. TOTAL TOXIC ORGANICS (TTO) LISTING (40 CFR 433)

Acenaphthene	Bis (2-chloroethoxy) methane	Tetrachloroethylene
Acrolein	Methylene chloride (dichloromethane)	Toluene
Acrylonitrile	Methyl chloride (chloromethane)	Trichloroethylene
Benzene	Methyl bromide (bromomethane)	Vinyl chloride (chloroethylene)
Benzidine	Bromoform (tribromomethane)	Aldrin
Carbon tetrachloride (tetrachloromethane)	Dichlorobromomethane	Dieldrin
Chlorobenzene	Chlorodibromomethane	Chlordane (technical mixture and metabolites)
1,2,4-Trichlorobenzene	Hexachlorobutadiene	4,4-DDT
Hexachlorobenzene	Hexachlorocyclopentadiene	4,4-DDE (p,p-DDX)
1,2,-Dichloroethane	Isophorone	4,4-DDD (p,p-TDE)
1,1,1-Trichloroethane	Naphthalene	Alpha-endosulfan
Hexachloroethane	Nitrobenzene	Beta-endosulfan
1,1-Dichloroethane	2-Nitrophenol	Endosulfan sulfate
1,1,2-Trichloroethane	4-Nitrophenol	Endrin
1,1,2,2-Tetrachloroethane	2,4-Dinitrophenol	Endrin aldehyde
Chloroethane	4,6-Dinitro-o-cresol	Heptachlor
Bis (2-chloroethyl) ether	N-nitrosodimethylamine	Heptachlor epoxide
2-Chloroethyl vinyl ether (mixed)	N-nitrosodiphenylamine	(BHC-hexachloro-
2-Chloronaphthalene	N-nitrosodi-n-propylamine	cyclohexane)
2,4,6-Trichlorophenol	Pentachlorophenol	Alpha-BHC
Parachlorometa cresol	Phenol	Beta-BHC
Chloroform (trichloromethane)	Bis (2-ethylhexyl) phthalate	Gamma-BHC
2-Chlorophenol	Butyl benzyl phthalate	Delta-BHC
1,2-Dichlorobenzene	Di-n-butyl phthalate	(PCB-polychlorinated biphenyls)
1,3-Dichlorobenzene	Di-n-octyl phthalate	PCB-1242 (Arochlor 1242)
1,4-Dichlorobenzene	Diethyl phthalate	PCB-1254 (Arochlor 1254)
3,3-Dichlorobenzidine	Dimethyl phthalate	PCB-1221 (Arochlor 1221)
1,1-Dichloroethylene	1,2-Benzanthracene	PCB-1232 (Arochlor 1232)
1,2-Trans-dichloroethylene	(benzo(a)anthracene)	PCB-1248 (Arochlor 1248)
2,4-Dichlorophenol	Benzo(a)pyrene (3,4-benzopyrene)	PCB-1260 (Arochlor 1260)
1,2-Dichloropropane	3,4-Benzofluoranthene (benzo(b)fluoranthene)	PCB-1016 (Arochlor 1016)
1,3-Dichloropropylene (1,3-dichloropropene)	1,1,12-Benzofluoranthene (benzo(k)fluoranthene)	Toxaphene
2,4-Dimethylphenol	Chrysene	2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)
2,4-Dinitrotoluene	Acenaphthylene	
2,6-Dinitrotoluene	Anthracene	
1,2-Diphenylhydrazine	1,12-Benzoperylene (benzo(ghi)perylene)	
Ethylbenzene	Fluorene	
Fluoranthene	Phenanthrene	
4-Chlorophenyl phenyl ether	1,2,5,6-Dibenzanthracene (dibenzo(a,h)anthracene)	
4-Bromophenyl phenyl ether	Indeno(1,2,3-cd) pyrene (2,3-o-phenylene pyrene)	
Bis (2-chloroisopropyl) ether	Pyrene	

ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
 WATER DIVISION – INDUSTRIAL AND MUNICIPAL SECTIONS
NONCOMPLIANCE NOTIFICATION FORM

PERMITTEE NAME: _____ PERMIT NO: _____

FACILITY LOCATION: _____

DMR REPORTING PERIOD: _____

1. DESCRIPTION OF DISCHARGE: (Include outfall number (s))

2. DESCRIPTION OF NON-COMPLIANCE: (Attach additional pages if necessary):

LIST EFFLUENT VIOLATIONS (If applicable)			
Outfall Number (s)	NONCOMPLIANCE PARAMETER(S)	Result Reported (Include units)	Permit Limit (Include units)
LIST MONITORING / REPORTING VIOLATIONS (If applicable)			
Outfall Number (s)	NONCOMPLIANCE PARAMETER(S)	Monitoring / Reporting Violation (Provide description)	

3. CAUSE OF NON-COMPLIANCE (Attach additional pages if necessary):

4. PERIOD OF NONCOMPLIANCE: (Include exact date(s) and time(s) or, if not corrected, the anticipated time the noncompliance is expected to continue):

5. DESCRIPTION OF STEPS TAKEN AND/OR BEING TAKEN TO REDUCE OR ELIMINATE THE NONCOMPLYING DISCHARGE AND TO PREVENT ITS RECURRENCE (attach additional pages if necessary):

 "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

 NAME AND TITLE OF RESPONSIBLE OFFICIAL (type or print)

 SIGNATURE OF RESPONSIBLE OFFICIAL / DATE SIGNED

ADEM PERMIT RATIONALE

PREPARED DATE: October 12, 2016
PREPARED BY: Latoya Hall
Revised: November 29, 2016

Permittee Name: AM/NS CALVERT LLC

Permit Number: AL0080233

PERMIT IS A MODIFICATION

DISCHARGE SERIAL NUMBERS & DESCRIPTIONS:

DSN001: Treated waste water from acid cleaning and nickel plating operations.

INDUSTRIAL CATEGORY: 40 CFR 433

MAJOR: N

STREAM INFORMATION:

Receiving Stream:	Tombigbee River
Classification:	Fish and Wildlife
River Basin:	Lower Tombigbee River Basin
7Q10:	1543 cfs
1Q10:	1157 cfs
Annual Average Flow:	31950 cfs
303(d) List:	Yes
Impairment:	Mercury
TMDL:	No

DISCUSSION:

AM/NS Calvert operates a carbon steel processing mill. This modification is for the addition of a nickel plating operations that would discharge 0.54 MGD to the Tombigbee River via the Outokumpu Stainless discharge line. The two lines commingle after treatment and discharge via Outokumpu's 3 port diffuser.

ADEM Administrative Rule 335-6-10-.12 requires applicants to new or expanded discharges to Tier II waters demonstrate that the proposed discharge is necessary for important economic or social development in the area in which the waters are located. The application submitted by the facility is not for a discharge to a Tier II water body. Therefore, anti-degradation requirements do not apply.

0011:

<u>Parameter</u>	<u>Monthly Avg Loading</u>	<u>Daily Max Loading</u>	<u>Daily Min Concentration</u>	<u>Monthly Avg Concentration</u>	<u>Daily Max Concentration</u>	<u>Sample Frequency</u>	<u>Sample Type</u>	<u>Basis*</u>
Temperature, Water Deg. Fahrenheit	-	-	-	REPORT F	115 F	Daily	Continuous	WQBEL
Oxygen, Dissolved (DO)	-	-	2.0 mg/l	REPORT mg/l	-	2X Monthly	Grab	WQBEL
pH	-	-	6.0 S.U.	-	9.0 S.U.	Daily	Grab	EGL
Solids, Total Suspended	-	-	-	31 mg/l	60 mg/l	Weekly	Composite	EGL
Oil & Grease	-	-	-	26 mg/l	52 mg/l	Weekly	Grab	EGL
Nitrogen, Ammonia Total (As N)	-	-	-	16 mg/l	24 mg/l	2X Monthly	Composite	BPJ
Nitrogen, Kjeldahl Total (As N)	-	-	-	46 mg/l	69 mg/l	2X Monthly	Composite	BPJ
Nitrite Plus Nitrate Total 1 Det. (As N)	-	-	-	REPORT mg/l	REPORT mg/l	2X Monthly	Composite	BPJ
Phosphorus, Total (As P)	-	-	-	REPORT mg/l	REPORT mg/l	2X Monthly	Composite	BPJ
Cyanide, Total (As CN)	-	-	-	0.65 mg/l	1.2 mg/l	Weekly	Grab	EGL
Cadmium, Total (As Cd)	-	-	-	0.07 mg/l	0.11 mg/l	Weekly	Composite	EGL
Chromium, Total (As Cr)	-	-	-	1.71 mg/l	2.77 mg/l	Weekly	Composite	EGL
Copper, Total (As Cu)	-	-	-	2.07 mg/l	3.38 mg/l	Weekly	Composite	EGL
Lead, Total (As Pb)	-	-	-	0.43 mg/l	0.69 mg/l	Weekly	Composite	EGL
Nickel, Total (As Ni)	-	-	-	2.38 mg/l	3.98 mg/l	Weekly	Composite	EGL
Silver, Total (As Ag)	-	-	-	0.24 mg/l	0.43 mg/l	Weekly	Composite	EGL
Zinc, Total (As Zn)	-	-	-	1.48 mg/l	2.61 mg/l	Weekly	Composite	EGL
Flow, In Conduit or Thru Treatment Plant	REPORT MGD	REPORT MGD	-	-	-	Daily	Totalizer	BPJ
Mercury, Total Recoverable	-	-	-	REPORT mg/l	REPORT mg/l	Monthly	Composite	BPJ
Organics, Total Toxic (TTO)	-	-	-	-	2.13 mg/l	Monthly	Composite	EGL
BOD, Carbonaceous 05 Day, 20C	-	-	-	38 mg/l	57 mg/l	2X Monthly	Composite	WQBEL

001T: Whole Effluent Toxicity

<u>Parameter</u>	<u>Monthly Avg Loading</u>	<u>Daily Max Loading</u>	<u>Daily Min Concentration</u>	<u>Monthly Avg Concentration</u>	<u>Daily Max Concentration</u>	<u>Sample Frequency</u>	<u>Sample Type</u>	<u>Basis*</u>
Toxicity, Ceriodaphnia Acute	-	0 pass(0)/fail(1)	-	-	-	Quarterly	Composite	WQBEL
Toxicity, Pimephales Acute	-	0 pass(0)/fail(1)	-	-	-	Quarterly	Composite	WQBEL

002Q:

<u>Parameter</u>	<u>Monthly Avg Loading</u>	<u>Daily Max Loading</u>	<u>Daily Min Concentration</u>	<u>Monthly Avg Concentration</u>	<u>Daily Max Concentration</u>	<u>Sample Frequency</u>	<u>Sample Type</u>	<u>Basis*</u>
pH	-	-	REPORT S.U.	-	REPORT S.U.	Quarterly	Grab	**
Solids, Total Suspended	-	-	-	-	REPORT mg/l	Quarterly	Grab	**
Oil & Grease	-	-	-	-	15 mg/l	Quarterly	Grab	**
Chromium, Total (As Cr)	-	-	-	-	REPORT mg/l	Quarterly	Grab	**
Lead, Total (As Pb)	-	-	-	-	REPORT mg/l	Quarterly	Grab	**
Nickel, Total (As Ni)	-	-	-	-	REPORT mg/l	Quarterly	Grab	**
Zinc, Total (As Zn)	-	-	-	-	REPORT mg/l	Quarterly	Grab	**
Flow, In Conduit or Thru Treatment Plant	-	REPORT MGD	-	-	-	Quarterly	Estimate	**
Mercury, Total (As Hg)	-	-	-	-	REPORT mg/l	Quarterly	Grab	**
Chemical Oxygen Demand (COD)	-	-	-	-	REPORT mg/l	Quarterly	Grab	**

003Q:

<u>Parameter</u>	<u>Monthly Avg Loading</u>	<u>Daily Max Loading</u>	<u>Daily Min Concentration</u>	<u>Monthly Avg Concentration</u>	<u>Daily Max Concentration</u>	<u>Sample Frequency</u>	<u>Sample Type</u>	<u>Basis*</u>
pH	-	-	REPORT S.U.	-	REPORT S.U.	Quarterly	Grab	**
Solids, Total Suspended	-	-	-	-	REPORT mg/l	Quarterly	Grab	**
Oil & Grease	-	-	-	-	15 mg/l	Quarterly	Grab	**
Chromium, Total (As Cr)	-	-	-	-	REPORT mg/l	Quarterly	Grab	**
Lead, Total (As Pb)	-	-	-	-	REPORT mg/l	Quarterly	Grab	**
Nickel, Total (As Ni)	-	-	-	-	REPORT mg/l	Quarterly	Grab	**
Zinc, Total (As Zn)	-	-	-	-	REPORT mg/l	Quarterly	Grab	**
Flow, In Conduit or Thru Treatment Plant	-	REPORT MGD	-	-	-	Quarterly	Estimate	**
Mercury, Total (As Hg)	-	-	-	-	REPORT mg/l	Quarterly	Grab	**
Chemical Oxygen Demand (COD)	-	-	-	-	REPORT mg/l	Quarterly	Grab	**

004Q:

<u>Parameter</u>	<u>Monthly Avg Loading</u>	<u>Daily Max Loading</u>	<u>Daily Min Concentration</u>	<u>Monthly Avg Concentration</u>	<u>Daily Max Concentration</u>	<u>Sample Frequency</u>	<u>Sample Type</u>	<u>Basis*</u>
pH	-	-	REPORT S.U.	-	REPORT S.U.	Quarterly	Grab	**
Solids, Total Suspended	-	-	-	-	REPORT mg/l	Quarterly	Grab	**
Oil & Grease	-	-	-	-	15 mg/l	Quarterly	Grab	**
Chromium, Total (As Cr)	-	-	-	-	REPORT mg/l	Quarterly	Grab	**
Lead, Total (As Pb)	-	-	-	-	REPORT mg/l	Quarterly	Grab	**
Nickel, Total (As Ni)	-	-	-	-	REPORT mg/l	Quarterly	Grab	**
Zinc, Total (As Zn)	-	-	-	-	REPORT mg/l	Quarterly	Grab	**
Flow, In Conduit or Thru Treatment Plant	-	REPORT MGD	-	-	-	Quarterly	Estimate	**
Mercury, Total (As Hg)	-	-	-	-	REPORT mg/l	Quarterly	Grab	**
Chemical Oxygen Demand (COD)	-	-	-	-	REPORT mg/l	Quarterly	Grab	**

007Q:

<u>Parameter</u>	<u>Monthly Avg Loading</u>	<u>Daily Max Loading</u>	<u>Daily Min Concentration</u>	<u>Monthly Avg Concentration</u>	<u>Daily Max Concentration</u>	<u>Sample Frequency</u>	<u>Sample Type</u>	<u>Basis*</u>
pH	-	-	REPORT S.U.	-	REPORT S.U.	Quarterly	Grab	**
Solids, Total Suspended	-	-	-	-	REPORT mg/l	Quarterly	Grab	**
Oil & Grease	-	-	-	-	15 mg/l	Quarterly	Grab	**
Chromium, Total (As Cr)	-	-	-	-	REPORT mg/l	Quarterly	Grab	**
Lead, Total (As Pb)	-	-	-	-	REPORT mg/l	Quarterly	Grab	**
Nickel, Total (As Ni)	-	-	-	-	REPORT mg/l	Quarterly	Grab	**
Zinc, Total (As Zn)	-	-	-	-	REPORT mg/l	Quarterly	Grab	**
Flow, In Conduit or Thru Treatment Plant	-	REPORT MGD	-	-	-	Quarterly	Estimate	**
Chemical Oxygen Demand (COD)	-	-	-	-	REPORT mg/l	Quarterly	Grab	**

009Q:

<u>Parameter</u>	<u>Monthly Avg Loading</u>	<u>Daily Max Loading</u>	<u>Daily Min Concentration</u>	<u>Monthly Avg Concentration</u>	<u>Daily Max Concentration</u>	<u>Sample Frequency</u>	<u>Sample Type</u>	<u>Basis*</u>
------------------	----------------------------	--------------------------	--------------------------------	----------------------------------	--------------------------------	-------------------------	--------------------	---------------

pH	-	-	REPORT S.U.	-	REPORT S.U.	Quarterly	Grab	**
Solids, Total Suspended	-	-	-	-	REPORT mg/l	Quarterly	Grab	**
Oil & Grease	-	-	-	-	15 mg/l	Quarterly	Grab	**
Chromium, Total (As Cr)	-	-	-	-	REPORT mg/l	Quarterly	Grab	**
Lead, Total (As Pb)	-	-	-	-	REPORT mg/l	Quarterly	Grab	**
Nickel, Total (As Ni)	-	-	-	-	REPORT mg/l	Quarterly	Grab	**
Zinc, Total (As Zn)	-	-	-	-	REPORT mg/l	Quarterly	Grab	**
Flow, In Conduit or Thru Treatment Plant	-	REPORT MGD	-	-	-	Quarterly	Estimate	**
Mercury, Total (As Hg)	-	-	-	-	REPORT mg/l	Quarterly	Grab	**
Chemical Oxygen Demand (COD)	-	-	-	-	REPORT mg/l	Quarterly	Grab	**

010Q:

<u>Parameter</u>	<u>Monthly Avg Loading</u>	<u>Daily Max Loading</u>	<u>Daily Min Concentration</u>	<u>Monthly Avg Concentration</u>	<u>Daily Max Concentration</u>	<u>Sample Frequency</u>	<u>Sample Type</u>	<u>Basis*</u>
pH	-	-	REPORT S.U.	-	REPORT S.U.	Quarterly	Grab	**
Solids, Total Suspended	-	-	-	-	REPORT mg/l	Quarterly	Grab	**
Oil & Grease	-	-	-	-	15 mg/l	Quarterly	Grab	**
Chromium, Total (As Cr)	-	-	-	-	REPORT mg/l	Quarterly	Grab	**
Lead, Total (As Pb)	-	-	-	-	REPORT mg/l	Quarterly	Grab	**
Nickel, Total (As Ni)	-	-	-	-	REPORT mg/l	Quarterly	Grab	**
Zinc, Total (As Zn)	-	-	-	-	REPORT mg/l	Quarterly	Grab	**
Flow, In Conduit or Thru Treatment Plant	-	REPORT MGD	-	-	-	Quarterly	Estimate	**
Chemical Oxygen Demand (COD)	-	-	-	-	REPORT mg/l	Quarterly	Grab	**

**No Change during this modification

*Basis for Permit Limitation

- BPJ – Best Professional Judgment
- WQBEL – Water Quality Based Effluent Limits
- EGL – Federal Effluent Guideline Limitations
- 303(d) – 303(d) List of Impaired Waters
- TMDL – Total Maximum Daily Load Requirements

DSN001: Treated waste water from acid cleaning and nickel plating operations.

Federal Effluent Guideline Limitations (EGL)

Parameters based upon EGL have had effluent guidelines established under the 40 CFR 433.16 New Source performance standards (NSPS).

Alternatively, for industrial facilities with cyanide treatment, and upon agreement between a source subject to those limits and the pollution control authority, amenable cyanide limit may apply in place of the total cyanide limit.

Revised November 29, 2016

The permittee has indicated that cyanide will not be used in the plating process and cyanide treatment will not present. Therefore, the total cyanide requirement will apply at this time.

pH

The ADEM Administrative Code, Division 6 Regulations, specifically 335-6-10-.09(5)(e)2-Specific Water Quality Criteria for Swimming and Other Whole Body Water-Contact Sports/Fish & Wildlife Classified streams states "Sewage, industrial waste, or other wastes shall not cause the pH to deviate more than one unit from the normal or natural pH, nor be less than 6.0, nor greater than 8.5 standard units." However, based on BPJ, due to the low discharge flow rate and the flow of the receiving stream, the pH limitations for this outfall shall be based on the Federal Guideline limitations. It is not expected to adversely affect the water quality of the receiving stream.

Revised November 29, 2016

The permittee has indicated that they do not expect the following pollutants to be present in the wastestream and has requested them to be removed. However, due to the lack of data at this time the parameters will remain. Sampling for TKN, Nitrite + Nitrate, and Total Phosphorus will only be required during the months of April-October.

CBOD, DO, Ammonia, & TKN

A Water Quality Waste Load Model was developed for the identified receiving stream. The 2008 WLA Model established annual effluent limits for Dissolved Oxygen, CBOD, TKN, and Ammonia. The daily maximum values were calculated using a factor of 1.5 times the monthly average.

Additional Nutrients Monitoring

Nitrite + Nitrate, and Total Phosphorus will be included in this permit to address potential nutrient concentration concerns. Monitoring results will be used to develop limits in the future if it is warranted to protect water quality standards for the receiving streams.

Temperature

Based on the 2008 CORMIX Mixing Zone Model for the receiving stream, the daily maximum temperature was determined to be 115 °F.

303(d) List of Impaired Waters/Total Maximum Daily Load (TMDL)

The Tombigbee River is on the State's 303d list for impaired streams for Mercury. Although the discharge is not expected to contribute to this impairment, mercury monitoring is required to collect data for future TMDL development.

BIO-MONITORING & DISCHARGE INFORMATION ZONE REQUIREMENTS

In view of the potential toxicity of the wastewater, monthly 48-hr acute bio-monitoring is required. Based on revised CORMIX model, the in-stream waste concentration (IWC) at the edge of the zone of initial dilution (ZID) is 11.1%. (See Attached Memorandum)

The samples shall be representative of the combined discharge flow from Outokumpu Stainless (AL0079901) and AM/NS Calvert (AL0080233). The samples may be taken after the flows combine from each facility or prior to commingling in which the samples must be flow-weighted based on the actual flow from each facility during the sampling period.

A Reasonable Potential Analysis was performed to determine if the effluent discharge to the receiving stream would cause a potential to violate the Water Quality Criteria at the point of discharge. Background Instream data and Background Source Data were used from Outokumpu's RP Analysis. Based on the available data, it was determined that the facility has a reasonable potential to violate the water quality criteria for Silver. However, the guideline limitation for silver is more stringent than the WQ limitation of 1.35 mg/l, so therefore the guideline requirements will apply at his time (see Attached RP Analysis Worksheet).

316 (b) Requirements

If an entity provides water to the Permittee which is used for cooling by means of a surface water intake, the intake structure operated by the entity must be determined to represent the best technology available (BTA) to minimize adverse environmental impact in accordance with Section 316(b) of the federal Clean Water Act (33 U.S.C. section 1326) and rules adopted under this section. If the entity's intake structure does not represent BTA, the Permittee must obtain water for cooling purposes from another source. The Permittee receives its cooling water from Outokumpu Stainless USA whose intake structure has been determined to meet the BTA requirements in accordance with section 316 (b) of the federal Clean Water Act.

Waste Load Allocation Summary

Comments included

Yes No

General Information

Information Verified By **CPR**

Page 1

Receiving Stream Name **Tombigbee River**

Year File Was Created **2007**

Previous File Name

OR: Local Name (If applicable)

Facility Name **ThyssenKrupp**

Previous Discharger Name

Or-AKA (Includes previous file name)

11 Digit HUC Code **03160203130**

12 Digit HUC Code **031602031103**

River Basin **Lower Tombigbee**

County **Mobile**

Use Classification **F&W**

Discharge Latitude **31.15143**

Discharge Longitude **-87.97319**

Site Visit Completed? Yes No

Date of Site Visit

Waterbody Impaired? Yes No

Antidegradation Yes No

Waterbody Tier Level **Tier II**

Use Support Category **2B**

Other Point Sources? Yes No

Sources Included in Model

Boise White Paper
Jackson WWTP
CIBA-Geigy
Olin Chemicals

Print Record

Close Form

Date of WLA Response **3/3/2009**

Lat/Long Method **Municipal/Industrial**

Approved TMDL?

Yes No

Approval Date of TMDL

Permit Information

Permit Number **AL0079901**

Permit Status **Proposed**

Type of Discharger

- Municipal
 Industrial
 Semipublic/Private
 Mining

Waste Load Allocation Information

Modeled Reach Length **82**

Miles

Date of Allocation **3/3/2009**

Name of Model Used **QUAL2E**

Allocation Type **Annual**

Model Completed by **cpr**

Type of Model Used **Desk-top**

Allocation Developed by **Water Quality Branch**

Waste Load Allocation Summary

Annual Effluent Limits	Conventional Parameters				Other Parameters			
	Qw	MGD	Qw	MGD	Qw	MGD	Qw	MGD
Season			Season			Season		
From			From			From		
Through			Through			Through		
CBOD5	38	mg/L	CBOD5		CBOD5		TP	
NH3-N	16	mg/L	NH3-N		NH3-N		TN	
TKN	46	mg/L	TKN		TKN		TSS	
D.O.	2	mg/L	D.O.		D.O.			

"Monitor Only" Parameters for Effluent:				Parameter	Frequency	Parameter	Frequency
				TN	Monthly	NO2+NO3-N	Monthly
				TP	Monthly		
				DRP	Monthly		

Water Quality Characteristics Immediately Upstream of Discharge				
Parameter	Summer		Winter	
CBODu	2	mg/l		mg/l
NH3-N	0.11	mg/l		mg/l
Temperature	30	°C		°C
pH	7	su		su

Hydrology at Discharge Location				Method Used to Calculate	
Drainage Area Qualifier	Drainage Area	20032	sq mi		
	Stream 7Q10	1859	cfs	ADEM Estimate w/USGS Gage Data	
	Stream 1Q10	1394	cfs	ADEM Estimate w/USGS Gage Data	
	Stream 7Q2		cfs		
	Annual Average	34400	cfs	ADEM Estimate w/USGS Gage Data	

Comments and/or Notations: This model is a revised WLA for TK based upon a change in the proposed design flow. The change is from 5.28 to 6.31 mgd. Total loading for oxygen demand was kept almost identical to that for the 5.28 mgd simulation. This model is based upon the model for 5.28 mgd performed in Dec 2007.

LANCE R. LEFLEUR
DIRECTOR

ROBERT J. BENTLEY
GOVERNOR



Alabama Department of Environmental Management
adem.alabama.gov

1400 Coliseum Blvd. 36110-2400 ■ Post Office Box 301463
Montgomery, Alabama 36130-1463
(334) 271-7700 ■ FAX (334) 271-7950

MEMORANDUM

July 29, 2016

Prepared For: Latoya Hall, Industrial Section
Prepared By: Ross Caton, ADEM Water Quality Branch
Subject: CORMIX Modeling Review – AM/NS Calvert

The Water Quality Branch has performed a CORMIX modeling review for AM/NS Calvert. The facility is proposing to discharge to the Tombigbee River with an effluent flow rate of 0.54 MGD combined with Outokumpu Stainless USA LLC's (AL0079901) current permitted flow of 6.3 MGD.

A limiting dilution of 146.8:1 was calculated using the design effluent flow rate of 6.84 MGD and a Tombigbee River 7Q10 value of 1543 cfs. Therefore, based upon the established ADEM protocol for Whole Effluent Toxicity (WET) determination, acute toxicity using the 1Q10 flow applicable at the edge of the ZID will be employed for the review. The applicable distance to the edge of the ZID is 26.6 ft (8.11m), based upon the criterion stating the ZID is equal to *50 times the discharge length scale (DLS), applicable in any spatial direction.*

The existing Outokumpu Stainless USA LLC outfall structure consists of a submerged 24 foot long 36 inch diameter pipe with three ports pointed vertically at 20° and 5.5 feet from the river bottom. The ports consist of 12" Tideflex duckbill type check valves; the consultant Amec Foster Wheeler states that the effective port diameter at average flow is 7.2 inches.

An **IWC of 11.1%** was predicted at the edge of the ZID. This value is identical to the IWC calculated by Amec Foster Wheeler. Therefore, based upon our review, the Water Quality Branch believes that the findings from Amec Foster Wheeler are reasonable.

Birmingham Branch
110 Vulcan Road
Birmingham, AL 35209-4702
(205) 942-6168
(205) 941-1603 (FAX)

Decatur Branch
2715 Sandlin Road, S.W.
Decatur, AL 35603-1333
(256) 353-1713
(256) 340-9359 (FAX)



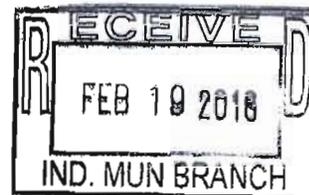
Mobile Branch
2204 Perimeter Road
Mobile, AL 36615-1131
(251) 450-3400
(251) 479-2593 (FAX)

Mobile-Coastal
4171 Commanders Drive
Mobile, AL 36615-1421
(251) 432-6533
(251) 432-6598 (FAX)

Facility Name: AMNS Cahert NPDES No.: AL000233										Human Health Consumption Fish only (ug/g)									
Freshwater FBW classification.				Freshwater Acute (ug/g) Q ₁ = 1010						Avg Daily Discharge as reported by Applicant (Q ₁₀)			Freshwater Chronic (ug/g) Q ₁ = 7010			Carcinogens (Q ₁ = Annual Average Non-Carcinogen Q ₁ = 7010)			
ID	Pollutant	RP1	Carcinogen yes	Background from upstream source (C ₁₀) Daily Max	Max Daily Discharge as reported by Applicant (C ₁₀)	Water Quality Criteria (C ₁₀)	Draft Permit Limit (C ₁₀)	20% of Draft Permit Limit	RP7	Background from upstream source (C ₁₀) Monthly Avg	Avg Daily Discharge as reported by Applicant (C ₁₀)	Water Quality Criteria (C ₁₀)	Draft Permit Limit (C ₁₀)	20% of Draft Permit Limit	RP7	Water Quality Criteria (C ₁₀)	Draft Permit Limit (C ₁₀)	20% of Draft Permit Limit	RP7
1	Antimony			15	0					13	0					3.73E+02	8.90E+05	1.38E+05	No
2	Arsenic		YES	74	0	592.334	818952.866	163790.573	No	74	0	261.324	48272.012	96574.402	No	3.03E-01	1.15E+04	2.32E+03	No
3	Beryllium			0	0					0	0								
4	Cadmium			0	110	4.347	6025.524	1205.105	No	0	70	0.644	1189.255	237.851	No				
5	Chromium Chromium III			70	2770	1537.913	#####	425312.996	No	8.8	1710	200.051	369852.050	73900.410	No				
6	Chromium Chromium VI			28	0	16.000	22177.483	4435.497	No	15	0	11.000	20375.693	4065.139	No				
7	Copper			150	3360	18.026	21523.466	4304.699	No	18.4	2070	12.786	21219.605	4255.921	No				
8	Cadm			3.5	680	64.531	68852.591	17300.518	No	1.3	420	2.515	2864.481	566.896	No	1.30E+03	2.40E+06	4.80E+05	No
9	Mercury			0.015	0	2.400	3319.420	663.884	No	0.0018	0	0.012	17.372	3.474	No	4.24E-02	7.38E+01	1.47E+01	No
10	Nickel			130	119	515.824	710549.063	142109.613	No	130	119	57.292	102909.031	20581.808	No	9.93E+02	1.83E+06	3.66E+05	No
11	Selenium			4	0	20.000	27721.854	5544.371	No	1.3	0	5.000	9238.951	1847.790	No	2.43E+03	4.49E+06	8.98E+05	No
12	Silver	YES		0	430	0.978	1353.440	270.888	Yes	0	340								
13	Thallium			0	0					0	0					2.74E-01	5.05E+02	1.01E+02	No
14	Zinc			280	2610	197.369	244484.515	48896.903	No	70	1480	198.983	348288.081	69657.612	No	1.49E+04	2.75E+07	5.50E+06	No
15	Cyanide			420	860	22.000	30494.039	6098.808	No	25	320	5.200	9608.509	1921.702	No	9.33E+03	1.72E+07	3.45E+06	No
16	Total Phenolic Compounds			0	0					0	0								
17	Hardness (As CaCO3)			0	0					0	0								
18	Acrotin			0	0					0	0					5.43E+00	1.00E+04	2.01E+03	No
19	Acrylonitrile	YES		0	0					0	0					1.44E-01	5.51E+03	1.10E+03	No
20	Aldrin	YES		0	0	3.000	4158.278	831.656	No	0	0	1.300	2402.127	480.425	No	2.94E-05	1.12E+00	2.25E-01	No
21	Benzene	YES		0	0					0	0					1.55E+01	5.92E+05	1.18E+05	No
22	Bromofom	YES		0	0					0	0					7.88E+01	3.01E+06	6.02E+05	No
23	Carbon Tetrachloride	YES		0	0					0	0					9.57E-01	3.99E+04	7.32E+03	No
24	Chlorfane	YES		0	0	2.400	3328.622	665.324	No	0	0	0.004	7.845	1.569	No	4.73E-04	1.81E+03	3.62E+00	No
25	Chlorobenzene	YES		0	0					0	0					9.06E+02	1.87E+06	3.35E+05	No
26	Chlorodibromo-Methane	YES		0	0					0	0					7.41E+00	2.83E+05	5.67E+04	No
27	Chloroethane	YES		0	0					0	0								
28	2-Chloro-Ethylvinyl Ether	YES		0	0					0	0								
29	Chloroform	YES		0	0					0	0								
30	4,4'-DDD	YES		0	0					0	0					1.02E+02	3.90E+06	7.80E+05	No
31	4,4'-DDE	YES		0	0					0	0					1.81E-04	6.94E+00	1.39E+00	No
32	4,4'-DDT	YES		0	0					0	0					1.28E-04	4.90E+00	9.79E-01	No
33	Dichlorobromo-Methane	YES		0	0					0	0					1.28E-04	4.90E+00	9.79E-01	No
34	1,1-Dichloroethane	YES		0	0					0	0					1.00E+01	3.84E+05	7.68E+04	No
35	1,2-Dichloroethane	YES		0	0					0	0					2.14E+01	8.17E+05	1.63E+05	No
36	Trans-1,2-Dichloro-Ethylene	YES		0	0					0	0					5.91E+03	1.09E+07	2.18E+06	No
37	1,1-Dichloroethylene	YES		0	0					0	0					4.17E+03	1.59E+08	3.19E+07	No
38	1,2-Dichloropropane	YES		0	0					0	0					8.49E+00	1.57E+04	3.14E+03	No
39	1,3-Dichloro-Propylene	YES		0	0					0	0					1.23E+01	2.27E+04	4.54E+03	No
40	Dieldrin	YES		0	0	0.240	332.662	66.532	No	0	0	0.056	103.476	20.695	No	3.13E-05	1.19E+00	2.39E-01	No
41	Ethylbenzene	YES		0	0					0	0					1.24E+03	2.30E+06	4.60E+05	No
42	Methyl Bromide	YES		0	0					0	0					8.71E+02	1.61E+06	3.22E+05	No
43	Methyl Chloride	YES		0	0					0	0								
44	Methylene Chloride	YES		0	0					0	0					3.46E+02	1.32E+07	2.64E+06	No
45	1,1,2,2-Tetrachloro-Ethane	YES		0	0					0	0					2.33E+00	8.92E+04	1.78E+04	No
46	Tetrachloro-Ethane	YES		0	0					0	0					1.92E+00	7.33E+04	1.47E+04	No
47	Toluene	YES		0	0					0	0					8.72E+03	1.61E+07	3.22E+06	No
48	Toxaphene	YES		0	0	0.730	1011.848	202.370	No	0	0	0.0002	0.370	0.074	No	1.82E-04	6.19E+00	1.24E+00	No
49	Tributyltin (TBT)	YES		0	0	0.460	637.603	127.521	No	0	0	0.072	133.041	26.606	No				
50	1,1,1-Trichloroethane	YES		0	0					0	0								
51	1,1,2-Trichloroethane	YES		0	0					0	0					9.10E+00	3.44E+05	6.88E+04	No
52	Trichloroethylene	YES		0	0					0	0					1.75E+01	6.88E+05	1.34E+05	No
53	Vinyl Chloride	YES		0	0					0	0					1.42E+00	5.45E+04	1.09E+04	No
54	p-Chloro-m-Cresol	YES		0	0					0	0								
55	2-Chlorophenol	YES		0	0					0	0					8.71E+01	1.61E+06	3.22E+04	No
56	2,4-Dichlorophenol	YES		0	0					0	0					1.72E+02	3.19E+06	6.38E+04	No
57	2,4-Dimethylphenol	YES		0	0					0	0					4.98E+02	9.19E+05	1.84E+05	No
58	4,6-Dinitro-O-Cresol	YES		0	0					0	0								
59	2,4-Dinitrophenol	YES		0	0					0	0					3.11E+03	5.75E+06	1.15E+06	No
60	4,6-Dinitro-2-methylphenol	YES		0	0					0	0					1.65E+02	6.30E+06	1.27E+06	No
61	Dioxin (2,3,7,8-TCDD)	YES		0	0					0	0					2.67E-06	1.02E-03	2.04E-04	No
62	2-Nitrophenol	YES		0	0					0	0								
63	4-Nitrophenol	YES		0	0					0	0								
64	Pentachlorophenol	YES		0	0	8.723	12081.331	2416.266	No	0	0	6.693	12366.491	2473.298	No	1.77E+00	8.79E+04	1.76E+04	No
65	Phenol	YES		0	0					0	0					5.00E+05	9.24E+08	1.85E+08	No
66	2,4,6-Trichlorophenol	YES		0	0					0	0					1.41E+00	5.41E+04	1.08E+04	No
67	Acanaphthene	YES		0	0					0	0					5.79E+02	1.07E+06	2.14E+05	No
68	Acanaphthylene	YES		0	0					0	0								
69	Anthracene	YES		0	0					0	0					2.33E+04	4.31E+07	8.62E+06	No
70	Benzo(a)Anthracene	YES		0	0					0	0					1.16E-04	2.14E-01	4.28E-02	No
71	Benzo(a)Fluoranthene	YES		0	0					0	0					1.07E-02	4.07E+02	8.15E+01	No
72	Benzo(a)Pyrene	YES		0	0					0	0					1.07E-02	4.07E+02	8.15E+01	No
73	3,4-Benzo-Fluoranthene	YES		0	0					0	0					1.07E-02	1.97E+01	3.94E+00	No
74	Benzo(ghi)Perylene	YES		0	0					0	0					1.07E-02	1.97E+01	3.94E+00	No
75	Benzo(k)Fluoranthene	YES		0	0					0	0					1.07E-02	1.97E+01	3.94E+00	No
76	Bis(2-Chloroethoxy)	YES		0	0					0	0								
77	Methane	YES		0	0					0	0					3.07E-01	1.18E+04	2.35E+03	No
78	Bis(2-Chloroethyl)-Ether	YES		0	0					0	0								
79	Bis(2-Chloroisopropyl)-Ether	YES		0	0					0	0					3.78E+04	6.98E+07	1.40E+07	No
80	Bis(2-Ethylhexyl) Phthalate	YES		0	0					0	0					1.28E+00	4.90E+04	9.81E+03	No
81	4-Bromophenyl Phenyl Ether	YES		0	0					0	0								
82	Butyl Benzyl Phthalate	YES		0	0					0	0					1.13E+03	2.08E+06	4.17E+05	No
83	2-Chloronaphthalene	YES		0	0					0	0					9.24E+02	1.71E+06	3.42E+05	No
84	4-Chlorophenyl Phenyl Ether	YES		0	0					0	0								
85	Chrysene	YES		0	0					0	0					1.07E-02	4.07E+02	8.15E+01	No
86	Di-N-Butyl Phthalate	YES		0	0					0	0					2.82E+03	4.84E+06	9.68E+05	No
87	Di-N-Octyl Phthalate	YES		0	0					0	0								

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
PERMIT APPLICATION SUPPLEMENTARY INFORMATION

ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
WATER DIVISION – INDUSTRIAL / MINING PERMIT SECTION
POST OFFICE BOX 301463
MONTGOMERY, ALABAMA 36130-1463



INSTRUCTIONS: APPLICATIONS SHOULD BE TYPED OR PRINTED IN INK AND SUBMITTED TO THE DEPARTMENT IN DUPLICATE. IF INSUFFICIENT SPACE IS AVAILABLE TO ADDRESS ANY ITEM, PLEASE CONTINUE ON AN ATTACHED SHEET OF PAPER. PLEASE MARK N/A IN THE APPROPRIATE BOX WHEN AN ITEM IS NON-APPLICABLE TO THE APPLICANT.

PURPOSE OF THIS APPLICATION

- | | |
|----------------------------------------------------------------------|---------------------------------------------------------------------------|
| <input type="checkbox"/> INITIAL PERMIT APPLICATION FOR NEW FACILITY | <input type="checkbox"/> INITIAL PERMIT APPLICATION FOR EXISTING FACILITY |
| <input checked="" type="checkbox"/> MODIFICATION OF EXISTING PERMIT | <input type="checkbox"/> REISSUANCE OF EXISTING PERMIT |
| <input type="checkbox"/> REVOCATION & REISSUANCE OF EXISTING PERMIT | |

1. Facility Name: AM/NS Calvert, LLC

a. Operator Name: AM/NS Calvert, LLC

b. Is the operator identified in 1.a., the owner of the facility? Yes No
If no, provide the name and address of the operator and submit information indicating the operator's scope of responsibility for the facility.

2. NPDES Permit Number AL 0 0 8 0 2 3 3

3. SID Permit Number (if applicable): IU 4 1 - 4 9 - 0 0 8 3 0

4. NPDES General Permit Number (if applicable) ALG _____

5. Facility Physical Location: (Attach a map with location marked; street, route no. or other specific identifier)

Street: 1 AM/NS Way

City: Calvert County: Mobile State: AL Zip: 36513

Facility (Front Gate) Latitude: 31.152008 Longitude: -87.986710

6. Facility Mailing Address (Street or Post Office Box): PO Box 456

City: Calvert State: AL Zip: 36513

7. Responsible Official (as described on page 13 of this application):

Name and Title: Robrecht Himpe, President

Address: 1 AMNS Way

City: Calvert State: AL Zip: 36513

Phone Number: 251-289-3000

EMAIL Address: Robrecht.Himpe@arcelormittal.com

8. Designated Facility Contact:

Name and Title: Jordan Collins, Team Manager, Environmental

Phone Number: 251-289-3833

EMAIL Address: Jordan.Collins@ArcelorMittal.com

9. Designated Discharge Monitoring Report Contact:

Name and Title: Bill Leonard, Director, Centralized Facility

Phone Number: 251-289-3451

EMAIL Address: Bill.Leonard@ArcelorMittal.com

10. Type of Business Entity:

Corporation General Partnership Limited Partnership

Sole Proprietorship Other (Please Specify) _____

11. Complete this section if the Applicant's business entity is a Corporation

a) Location of Incorporation:

Address: State of Delaware, 2711 Centerville Rd, Suite 400

City: Wilmington County: New Castle State: DE Zip: 19808

b) Parent Corporation of Applicant:

Name: Two Companies: ArcelorMittal Calvert, LLC / NS Kote, Inc.

Address: 1 South Dearborn Street / 1251 6th Avenue, Suite 2320

City: Chicago / New York State: IL / NY Zip: 60603 / 10020

c) Subsidiary Corporation(s) of Applicant:

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

d) Corporate Officers:

Name: Robrecht Himpe, President

Address: 1 AM/NS Way

City: Calvert State: AL Zip: 36513

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

e) Agent designated by the corporation for purposes of service:

Name: Corporallon Service Company ("CSC")

Address: 2711 Centerville Road, Suite 400

City: Wilmington State: DE Zip: 19808

12. If the Applicant's business entity is a Partnership, please list the general partners.

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

13. If the Applicant's business entity is a Proprietorship, please enter the proprietor's information.

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

14. Permit numbers for Applicant's previously issued NPDES Permits and identification of any other State of Alabama Environmental Permits presently held by the Applicant, its parent corporation, or subsidiary corporations within the State of Alabama:

<u>Permit Name</u>	<u>Permit Number</u>	<u>Held By</u>
NPDES / SID / Title V Major	AL0080233/ IU 41-49-00830/ 503-0095	AM/NS Calvert, LLC
Section 401 Water Quality Certification	SAM-2007-0635-DMY	ThyssenKrupp Steel and Stainless USA, LLC
RCRA / Groundwater Extraction	ALR000042689 / MSC-07-13	AM/NS Calvert, LLC

15. Identify all Administrative Complaints, Notices of Violation, Directives, Administrative Orders, or Litigation concerning water pollution, if any, against the Applicant, its parent corporation or subsidiary corporations within the State of Alabama within the past five years (attach additional sheets if necessary):

<u>Facility Name</u>	<u>Permit Number</u>	<u>Type of Action</u>	<u>Date of Action</u>
ThyssenKrupp Steel & Stainless USA	ALR000042689	Notice of Violation	05-15-2010
ThyssenKrupp Steel & Stainless USA	ALR16D343	Warning Letter	10-06-2010
ThyssenKrupp Steel USA, LLC	ALR000042689	Notice of Violation	03-16-2012

SECTION B – BUSINESS ACTIVITY

1. Indicate applicable Standard Industrial Classification (SIC) Codes for all processes (If more than one applies, list in order of importance:

- a. 3312
- b. 3471
- c. _____
- d. _____
- e. _____

2. If your facility conducts or will be conducting any of the processes listed below (regardless of whether they generate wastewater, waste sludge, or hazardous waste), place a check beside the category of business activity (check all that apply):

Industrial Categories

- | | |
|---------------------------------------------------------------------------|--------------------------------------------------------------------|
| <input type="checkbox"/> Aluminum Forming | <input type="checkbox"/> Metal Molding and Casting |
| <input type="checkbox"/> Asbestos Manufacturing | <input type="checkbox"/> Metal Products |
| <input type="checkbox"/> Battery Manufacturing | <input type="checkbox"/> Nonferrous Metals Forming |
| <input type="checkbox"/> Can Making | <input type="checkbox"/> Nonferrous Metals Manufacturing |
| <input type="checkbox"/> Canned and Preserved Fruit and Vegetables | <input type="checkbox"/> Oil and Gas Extraction |
| <input type="checkbox"/> Canned and Preserved Seafood | <input type="checkbox"/> Organic Chemicals Manufacturing |
| <input type="checkbox"/> Cement Manufacturing | <input type="checkbox"/> Paint and Ink Formulating |
| <input type="checkbox"/> Centralized Waste Treatment | <input type="checkbox"/> Paving and Roofing Manufacturing |
| <input type="checkbox"/> Carbon Black | <input type="checkbox"/> Pesticides Manufacturing |
| <input type="checkbox"/> Coal Mining | <input type="checkbox"/> Petroleum Refining |
| <input type="checkbox"/> Coil Coating | <input type="checkbox"/> Phosphate Manufacturing |
| <input type="checkbox"/> Copper Forming | <input type="checkbox"/> Photographic |
| <input type="checkbox"/> Electric and Electronic Components Manufacturing | <input type="checkbox"/> Pharmaceutical |
| <input type="checkbox"/> Electroplating | <input type="checkbox"/> Plastic & Synthetic Materials |
| <input type="checkbox"/> Explosives Manufacturing | <input type="checkbox"/> Plastics Processing Manufacturing |
| <input type="checkbox"/> Feedlots | <input type="checkbox"/> Porcelain Enamel |
| <input type="checkbox"/> Ferroalloy Manufacturing | <input type="checkbox"/> Pulp, Paper, and Fiberboard Manufacturing |
| <input type="checkbox"/> Fertilizer Manufacturing | <input type="checkbox"/> Rubber |
| <input type="checkbox"/> Foundries (Metal Molding and Casting) | <input type="checkbox"/> Soap and Detergent Manufacturing |
| <input type="checkbox"/> Glass Manufacturing | <input type="checkbox"/> Steam and Electric |
| <input type="checkbox"/> Grain Mills | <input type="checkbox"/> Sugar Processing |
| <input type="checkbox"/> Gum and Wood Chemicals Manufacturing | <input type="checkbox"/> Textile Mills |
| <input type="checkbox"/> Inorganic Chemicals | <input type="checkbox"/> Timber Products |
| <input checked="" type="checkbox"/> Iron and Steel | <input type="checkbox"/> Transportation Equipment Cleaning |
| <input type="checkbox"/> Leather Tanning and Finishing | <input type="checkbox"/> Waste Combustion |
| <input checked="" type="checkbox"/> Metal Finishing | <input type="checkbox"/> Other (specify) _____ |
| <input type="checkbox"/> Meat Products | |

A facility with processes inclusive in these business areas may be covered by Environmental Protection (EPA) categorical standards. These facilities are termed "categorical users" and should skip to question 2 of Section C.

3. Give a brief description of all operations at this facility including primary products or services (attach additional sheets if necessary):

The carbon steel mill, owned and operated by AM/NS Calvert, LLC, receives carbon steel slabs by barge, truck, or rail. The slabs are reheated and rolled to form a long strip in the hot strip mill (HSM). From the HSM, the hot-rolled strips are prepared for sale or proceed to the coupled pickling line and Tandem Mill (cold rolling) or sent to the single-stand pickling lines for further processing. After pickling or pickling/cold rolling, the strips are either sold as is or further processed by galvanizing, annealing, and/or skin-rolling prior to sale. This application is for the discharge of process wastewater from a new acid cleaning and nickel plating section (SIC Code 3471). The wastewater generated from SIC Code 3312 operations is discharged under separate SID (IU 41-49-00830) and NPDES (AL0079901) permits.

SECTION C – WASTEWATER DISCHARGE INFORMATION

Facilities that checked activities in question 2 of Section B and are considered Categorical Industrial Users should skip to question 2 of this section.

1. **For Non-Categorical Users Only:** Provide wastewater flows for each of the processes or proposed processes. Using the process flow schematic (Figure 1, pg 14), enter the description that corresponds to each process. [New facilities should provide estimates for each discharge.]

Process Description	Last 12 Months (gals/day) Highest Month Avg. Flow	Highest Flow Year of Last 5 (gals/day) Monthly Avg. Flow	Discharge Type (batch, continuous, intermittent)
Not applicable			

If batch discharge occurs or will occur, indicate: [New facilities may estimate.]

- a. Number of batch discharges: _____ per day
- b. Average discharge per batch: _____ (GPD)
- c. Time of batch discharges _____ at _____
(days of week) (hours of day)
- d. Flow rate: _____ gallons/minute
- e. Percent of total discharge: _____

Non-Process Discharges (e.g. non-contact cooling water)	Last 12 Months (gals/day) Highest Month Avg. Flow	Highest Flow Year of Last 5 (gals/day) Monthly Avg. Flow

2. **Complete this Section only if you are subject to Categorical Standards and plan to directly discharge the associated wastewater to a water of the State.** If Categorical wastewater is discharged exclusively via an indirect discharge to a public or privately-owned treatment works, check "Yes" in the appropriate space below and proceed directly to part 2.c .

[] Yes

For Categorical Users: Provide the wastewater discharge flows or production (whichever is applicable by the effluent guidelines) for each of your processes or proposed processes. Using the process flow schematic (Figure 1, pg 14), enter the description that corresponds to each process. [New facilities should provide estimates for each discharge.]

2a.

<u>Regulated Process</u>	<u>Applicable Category</u>	<u>Applicable Subpart</u>	<u>Type of Discharge Flow (batch, continuous, intermittent)</u>
Electroplating	Metal Finishing	NSPS 433.16 (a)	Continuous
_____	_____	_____	_____
_____	_____	_____	_____

2b.

<u>Process Description</u>	<u>Last 12 Months (gals/day) Highest Month Average*</u>	<u>Highest Flow Year of Last 5 (gals/day) Monthly Average*</u>	<u>Discharge Type (batch, continuous, intermittent)</u>
HCl Cleaning Rinse Water	N/A	N/A	Continuous
Nickel Flash Plating Sol	N/A	N/A	Intermittent
Nickel Flash Plating Rinse	N/A	N/A	Continuous

*** Reported values should be expressed in units of the applicable Federal production-based standard. For example, flow (MGD), production (pounds per day), etc.**

If batch discharge occurs or will occur, indicate: [New facilities may estimate.]

- a. Number of batch discharges: _____ per day
- b. Average discharge per batch: _____ (GPD)
- c. Time of batch discharges _____ at _____
(days of week) (hours of day)
- d. Flow rate: _____ gallons/minute

Percent of total discharge: _____

2c.

<u>Non categorical Process Description</u>	<u>Last 12 Months (gals/day) Highest Month Avg. Flow</u>	<u>Highest Flow Year of Last 5 (gals/day) Monthly Avg. Flow</u>	<u>Discharge Type (batch, continuous, intermittent)</u>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

If batch discharge occurs or will occur, indicate: [New facilities may estimate.]

- a. Number of batch discharges: _____ per day
- b. Average discharge per batch: _____ (GPD)
- c. Time of batch discharges _____ at _____
(days of week) (hours of day)
- d. Flow rate: _____ gallons/minute

Percent of total discharge: _____

2d.

Non-Process Discharges (e.g. non-contact cooling water)	Last 12 Months (gals/day) Highest Month Avg. Flow	Highest Flow Year of Last 5 (gals/day) Monthly Avg. Flow
_____	_____	_____
_____	_____	_____

All Applicants must complete Questions 3 – 5.

3. Do you have, or plan to have, automatic sampling equipment or continuous wastewater flow metering equipment at this facility?

Flow Metering	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
Sampling Equipment	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>

If so, please indicate the present or future location of this equipment on the sewer schematic and describe the equipment below:

Flow metering and sampling equipment is planned at the proposed wastewater treatment system.

Refer to Figure 2 and Drawing P101-00 for flow metering and sampling point locations.

4. Are any process changes or expansions planned during the next three years that could alter wastewater volumes or characteristics? Yes No (If no, skip Question 5)

Briefly describe these changes and their anticipated effects on the wastewater volume and characteristics:

Production currently is approximately 60 to 70% of permitted design capacity. Within 3 years, capacity may increase to 100% design capacity.

5. List the trade name and chemical composition of all biocides and corrosion inhibitors used:

Trade Name	Chemical Composition
<u>Please refer to Appendix A for Chemicals List.</u>	
_____	_____
_____	_____

For each biocide and/or corrosion inhibitor used, please include the following information:

- (1) 96-hour median tolerance limit data for organisms representative of the biota of the waterway into which the discharge will ultimately reach,
- (2) quantities to be used,
- (3) frequencies of use,
- (4) proposed discharge concentrations, and
- (5) EPA registration number, if applicable

SECTION D – WATER SUPPLY

Water Sources (check as many as are applicable):

- Private Well Surface Water
- Municipal Water Utility (Specify City): Citronelle, AL Other (Specify): _____

South Alabama Utilities (SAU) in Citronelle, AL will provide potable water only.

IF MORE THAN ONE WELL OR SURFACE INTAKE, PROVIDE DATA FOR EACH ON AN ATTACHMENT

City: Calvert *MGD Well: 0.7-1 *MGD Well Depth: 100 Ft. Latitude: 31 09' 6.396" Longitude: -87 58' 38.659"

Surface Intake Volume: 17 (avg) *MGD Intake Elevation in Relation to Bottom -10 Ft.
21.6 MGD (design peak flow)

Intake Elevation: -.5 Ft. Latitude: 31 09' 15.014" Longitude: -87 58' 30.150"

Name of Surface Water Source: Tombigbee River

* MGD – Million Gallons per Day

Cooling Water Intake Structure Information

Complete questions 1 and 2 if your water supply is provided by an outside source and not by an onsite water intake structure? (e.g., another industry, municipality, etc...)

1. Does the provider of your source water operate a surface water intake? Yes No
(If yes, continue, if no, go to Section E.)

a) Name of Provider Outokumpu Stainless USA, LLC b) Location of Provider Calvert, AL

c) Latitude: 31.152008 Longitude: -87.986710

2. Is the provider a public water system (defined as a system which provides water to the public for human consumption or which provides only treated water, not raw water)? Yes No
(If yes, go to Section E, if no, continue.)

Only to be completed if you have a cooling water intake structure or the provider of your water supply uses an intake structure and does not treat the raw water.

3. Is any water withdrawn from the source water used for cooling? Yes No

4. Using the average monthly measurements over any 12-month period, approximately what percentage of water withdrawn is used exclusively for cooling purposes? _____%

5. Does the cooling water consist of treated effluent that would otherwise be discharged? Yes No
(If yes, go to Section E, if no, complete questions 6 – 17.)

6. Is the cooling water used in a once-through or closed cycle cooling system? Yes No

7. When was the intake installed?
(Please provide dates for all major construction/installation of intake components including screens)

8. What is the maximum intake volume?
(maximum pumping capacity in gallons per day)

9. What is the average intake volume?
(average intake pump rate in gallons per day average in any 30-day period)

10. How is the intake operated? (e.g., continuously, intermittently, batch)
11. What is the mesh size of the screen on your intake?
12. What is the intake screen flow-through area?
13. What is the through screen design intake flow velocity? _____ ft/sec
14. What is the mechanism for cleaning the screen? (e.g., does it rotate for cleaning)
15. Do you have any additional fish detraction technology on your intake? Yes | No
16. Have there been any studies to determine the impact of the intake on aquatic organisms? Yes | No (If yes please provide.)
17. Attach a site map showing the location of the water intake in relation to the facility, shoreline, water depth, etc.

SECTION E – WASTE STORAGE AND DISPOSAL INFORMATION

Provide a description of the location of all sites involved in the storage of solids or liquids that could be accidentally discharged to a water of the state, either directly or indirectly via such avenues as storm water drainage, municipal wastewater systems, etc., which are located at the facility for which the NPDES application is being made. Where possible, the location should be noted on a map and included with this application:

Description of Waste	Description of Storage Location
Filter Press Sludge	Roll-off container at treatment facility (refer to Figure 1)
Spent Pickle Liquor	Tank inside main plant (refer to Figure 1)

Provide a description of the location of the ultimate disposal sites of solid or liquid waste by-products (such as sludges) from any wastewater treatment system located at the facility.

Description of Waste	Quantity (lbs/day)	Disposal Method*
Spent Pickle Liquor (Off-Site Disposal)	264 to 1,321 gal/day	Baton Rouge, LA (Clean Harbors)
Filter Press Sludge (Off-Site Disposal)	3,333 lbs/day	Deer Park, TX or El Dorado, AR (Clean Harbors) or Emelle, AL (Waste Mngmt)

***Indicate which wastes identified above are disposed of at an off-site treatment facility and which are disposed of on-site. If any wastes are sent to an off-site centralized waste treatment facility, identify the waste and the facility.**

SECTION F – COASTAL ZONE INFORMATION

Is the discharge(s) located within 10-foot elevation of Mobile or Baldwin County?

Yes No If yes, then complete items A through M below:

YES **NO**

A. Does the project require new construction?

B. Will the project be a source of new air emissions?

C. Does the project involve dredging and/or filling?

Has the Corps of Engineers (COE) permit been received?

Corps Project Number SAM-2007-0635-DMY

D. Does the project involve wetlands and/or submersed grassbeds?

E. Are oyster reefs located near the project site?
(Include a map showing project and discharge location with respect to oyster reefs)

F. Does the project involve the siting, construction and operation of an energy facility as defined in ADEM Admin. Code R. 335-8-1-.02(bb)?

G. Does the project involve shoreline erosion mitigation?

H. Does the project involve construction on beaches and dunes?

I. Will the project interfere with public access to coastal waters?

J. Does the project lie within the 100-year floodplain?

K. Does the project involve the registration, sale, use, or application of pesticides?

L. Does the project propose to construct a new well or alter an existing well to pump more than 50 GPD?

M. Has the applicable permit been obtained?

SECTION G – ANTI-DEGRADATION EVALUATION

In accordance with 40 CFR 131.12 and the Alabama Department of Environmental Management Administrative Code, Section 335-6-10-.04 for antidegradation, the following information must be provided, if applicable. It is the applicant's responsibility to demonstrate the social and economic importance of the proposed activity. If further information is required to make this demonstration, attach additional sheets to the application.

1. Is this a new or increased discharge that began after April 3, 1991? Yes No
If yes, complete question 2 below. If no, go to Section H.

2. Has an Anti-Degradation Analysis been previously conducted and submitted to the Department for the new or increased discharge referenced in question 1? Yes No

If yes, do not complete this section.

If no, and the discharge is to a Tier II waterbody as defined in ADEM Admin. Code r. 335-6-10-.12(4), complete questions A through F below and ADEM forms 311 and 313 (attached). Form 313 must be provided for each alternative considered technically viable.

Information required for new or increased discharges to high quality waters:

- A. What environmental or public health problem will the discharger be correcting?
- B. How much will the discharger be increasing employment (at its existing facility or as the result of locating a new facility)?
- C. How much reduction in employment will the discharger be avoiding?
- D. How much additional state or local taxes will the discharger be paying?
- E. What public service to the community will the discharger be providing?
- F. What economic or social benefit will the discharger be providing to the community?

SECTION H – EPA Application Forms

All Applicants must submit EPA permit application forms. More than one application form may be required from a facility depending on the number and types of discharges or outfalls found there. The EPA application forms are found on the Department's website at <http://www.adem.state.al.us/>. The EPA application forms must be submitted in duplicate as follows:

1. All applicants must submit Form 1.
2. Applicants for existing industrial facilities (including manufacturing facilities, commercial facilities, mining activities, and silvicultural activities) which discharge process wastewater must submit Form 2C.
3. Applicants for new industrial facilities which propose to discharge process wastewater must submit Form 2D.
4. Applicants for new and existing industrial facilities which discharge only non-process wastewater (i.e., non-contact cooling water and/or sanitary wastewater) must submit Form 2E.
5. Applicants for new and existing facilities whose discharge is composed entirely of storm water associated with industrial activity must submit Form 2F, unless exempted by § 122.26(c)(1)(ii). If the discharge is composed of storm water and non-storm water, the applicant must also submit Forms 2C, 2D, and/or 2E, as appropriate (in addition to Form 2F).

SECTION I – ENGINEERING REPORT/BMP PLAN REQUIREMENTS

See ADEM 335-6-6-.08(i) & (j)

SECTION J-- RECEIVING WATERS

Receiving Water(s)	303(d) Segment? (Y / N)	Included in TMDL?*
Tombigbee River	Y	N

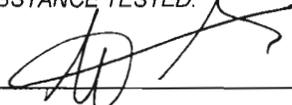
- *If a TMDL Compliance Schedule is requested, the following should be attached as supporting documentation:
- (1) Justification for the requested Compliance Schedule (e.g. time for design and installation of control equipment, etc.);
 - (2) Monitoring results for the pollutant(s) of concern which have not previously been submitted to the Department (sample collection dates, analytical results (mass and concentration), methods utilized, MDL/ML, etc. should be submitted as available);
 - (3) Requested interim limitations, if applicable;
 - (4) Date of final compliance with the TMDL limitations; and,
 - (5) Any other additional information available to support requested compliance schedule.

SECTION K – APPLICATION CERTIFICATION

THE INFORMATION CONTAINED IN THIS FORM MUST BE CERTIFIED BY A RESPONSIBLE OFFICIAL AS DEFINED IN ADEM ADMINISTRATIVE RULE 335-6-6-.09 "SIGNATORIES TO PERMIT APPLICATIONS AND REPORTS" (SEE BELOW).

"I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHER AND EVALUATE THE INFORMATION SUBMITTED. BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM, OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION, THE INFORMATION SUBMITTED IS, TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS."

"I FURTHER CERTIFY UNDER PENALTY OF LAW THAT ALL ANALYSES REPORTED AS LESS THAN DETECTABLE IN THIS APPLICATION OR ATTACHMENTS THERETO WERE PERFORMED USING THE EPA APPROVED TEST METHOD HAVING THE LOWEST DETECTION LIMIT FOR THE SUBSTANCE TESTED."

SIGNATURE OF RESPONSIBLE OFFICIAL:  DATE SIGNED: 15/02/2016

(TYPE OR PRINT) NAME OF RESPONSIBLE OFFICIAL: Robrecht Himpe

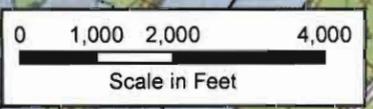
TITLE OF RESPONSIBLE OFFICIAL: President

MAILING ADDRESS: 1 AM/NS Way

CITY, STATE, ZIP: Calvert, AL 36513 PHONE: 251-289-3000

335-6-6-.09 SIGNATORIES TO PERMIT APPLICATIONS AND REPORTS.

- (1) The application for an NPDES permit shall be signed by a responsible official, as indicated below:
 - (a) In the case of a corporation, by a principal executive officer of at least the level of vice president, or a manager assigned or delegated in accordance with corporate procedures, with such delegation submitted in writing if required by the Department, who is responsible for manufacturing, production, or operating facilities and is authorized to make management decisions which govern the operation of the regulated facility;
 - (b) In the case of a partnership, by a general partner;
 - (c) In the case of a sole proprietorship, by the proprietor; or
 - (d) In the case of a municipal, state, federal, or other public entity, by either a principal executive officer, or ranking elected official.



- Legend**
- CAL 2 Nickel Plating System
 - Nickel Flash Wastewater Treatment System
 - ▲ Discharge Structure
 - ▲ Cooling Water Intake Structure
 - 1 Mile Buffer of Property Boundary
 - Approximate Site Boundary

NPDES Form 1

Calvert Mill

Topographic Map

Prepared by/Date:
CLS-11/17/15

Checked by/Date:
MML-11/17/15

Project Number:
6376151037.01

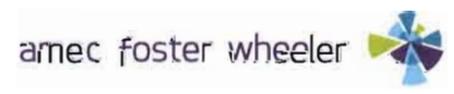
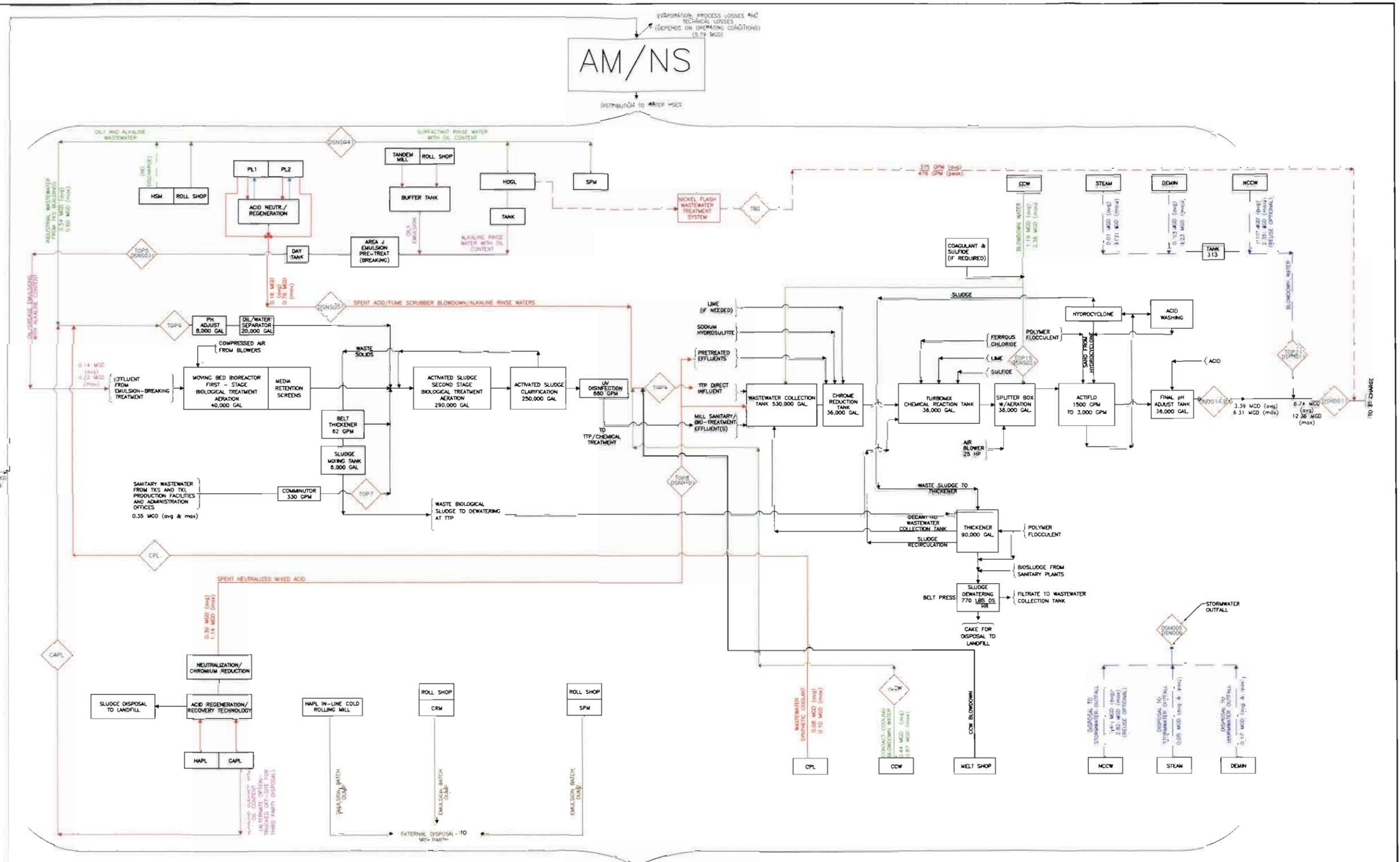


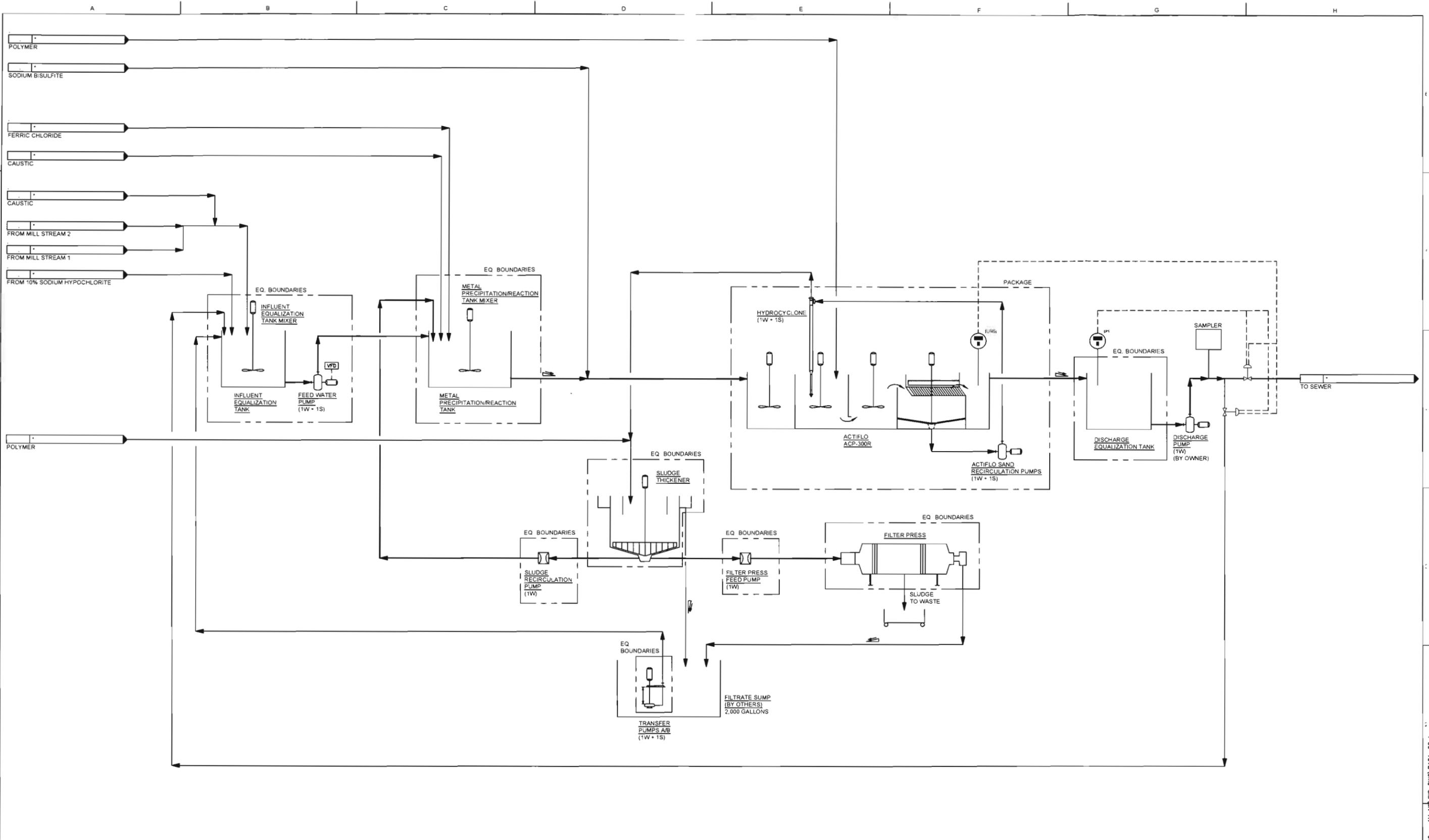
Figure Number:
1



LEGEND		AM/NS	
	FRESH ACID RETURN	AM/NS	AM/NS CALVERT, LLC
	DISPOSAL TO THIRD PARTY	CAPL	COLD ANNEALING AND PICKLING LINE
	INDUSTRIAL WATER OR CONTACT COOLING WATER BLOWDOWN	CCW	CONTACT COOLING WATER
	NON-CONTACT COOLING WATER AND BOILER BLOWDOWN/DEMIN PLANT BLOWDOWN	CRM	COIL POLISHING LINE
	EQUALIZATION TANK/NEUTRALIZATION/ALCOHOL COOLANT WASTEWATER	DEM/N	COLD ROLLING MILL
	EMULSIONS	CAL	DEMINERALIZED GALLONS
	PROPOSED DISCHARGE	HP	SKIN PASS MILL
	MONITORING POINT	HR	OUTOKUMPU
		HAPL	OUTOKUMPU STAINLESS USA, LLC
		HDGL	TO BE DETERMINED
		HSM	HOT STRIP MILL
		LBS	POUNDS
		MGD	MILION GALLONS PER DAY
		NCCW	NON-CONTACT COOLING WATER
		PL	PICKLING LINE
		SPW	PICKING LINE
		GPM	GALLONS PER MINUTE
		TBD	TO BE DETERMINED
		TOP	TAKEOVER POINT
		TTP	TERMINAL TREATMENT PLANT

NOTE: FLOWS SHOWN ARE DESIGN AVERAGE AND PEAK FLOWS

DESIGNED M. LATALLADI CHECKED T. GLADSTONE CHECKED M. LATALLADI IN CHARGE R. MAROTTE DATE 01/29/2015	PERMIT APPLICATION CALVERT, AL AMEC FOSTER WHEELER ENVIRONMENT & INFRASTRUCTURE, INC. 1075 BIRCHMOUNT ROAD, NW, SUITE 100 KENNESAW, GEORGIA 30144 (770) 421-3400	amec foster wheeler	CALVERT MILL PROCESS FLOW DIAGRAM SCALE AS SHOWN CONTRACT 6376-15-1037 SHEET NO. FIG 2
------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------	----------------------------------------------------------------------------------------------------



NOTES
 1. EQUIPMENT SUPPLIED BY VEOLIA. INTERCONNECTING PIPING DESIGNED, SUPPLIED AND INSTALLED BY OTHERS

REV	NO	ISSUE DATE	DESCRIPTION	
C	1-12-18	M. BADAMI	K. BENSON	ISSUED FOR PROPOSAL
B	12-1-15	M. BADAMI	K. BENSON	ISSUED FOR PROPOSAL
A	7-16-15	M. BADAMI	K. BENSON	ISSUED FOR PROPOSAL

DESIGNED BY	CHECKED BY	APPROVED BY
M. BADAMI	K. BENSON	
DESK	ENGINEERING	



INDUSTRIAL PROJECTS, MOON TOWNSHIP, PA 15108 USA, TEL. 1-412-400-8000
 ALL INFORMATION CONTAINED ON THIS DOCUMENT IS THE PROPERTY OF VEOLIA WATER TECHNOLOGIES. THE DESIGN CONCEPTS AND INFORMATION CONTAINED HEREIN ARE PROPRIETARY TO VEOLIA AND ARE SUBMITTED IN CONFIDENCE. THEY ARE NOT TRANSFERABLE AND MUST BE USED ONLY FOR THE PURPOSE FOR WHICH THE DOCUMENT IS EXPRESSLY SUBMITTED. THEY MUST NOT BE DISCLOSED, REPRODUCED, LOANED OR USED IN ANY OTHER MANNER WITHOUT THE EXPRESS WRITTEN CONSENT OF VEOLIA. VEOLIA ASSUMES NO RESPONSIBILITY OR LIABILITY FOR THE USE OF THIS DOCUMENT OR THE DESIGN CONCEPTS AND INFORMATION CONTAINED HEREIN FOR ANOTHER PROJECT, OR IN A MANNER THAT DOES NOT RELATE TO THE FITNESS OR PURPOSE OF THIS DOCUMENT. IN NO EVENT SHALL THIS DOCUMENT OR THE DESIGN CONCEPTS AND INFORMATION CONTAINED HEREIN BE USED IN ANY MANNER DETRIMENTAL TO THE INTERESTS OF VEOLIA. ALL PATENT RIGHTS ARE RESERVED. ACCEPTANCE OF THE DELIVERY OF THIS DOCUMENT CONSTITUTES AGREEMENT TO THESE TERMS AND CONDITIONS.

SCALE	NONE	DRAWN BY	W. KONYHA
TITLE	AM/NS CALVERT LLC NICKEL FLASH WWTP CALVERT, AL		
	PROCESS FLOW DIAGRAM		
CONTRACT NO.	5600115049	DWG NO.	P101-00
			C

Appendix A: AM/NS Calvert, LLC Chemicals List

Number	Product Name	Product Type	Product Use	Active Component(s)	96-Hour LC50	Quantity Used (lbs/yr) ¹	Frequency of Use	CAS Registry Number	Discharge Concentration ² (lbs/MG)	Location of Use
1	ChemTreat BL122	Scavenger	Dechlorination and Boiler Water Treatment	Sodium bisulfite	Fathead Minnow: >1,000 mg/L Sheepshead Minnow: 100 mg/L	Not Used	Not Used	7631-90-5	Not Used	Not Used
2	ChemTreat BL1285	Scavenger	Closed Loop Treatment	Diethylhydroxylamine	Guppies: 1,765 mg/L Fathead Minnow: >10,000 mg/L	625	Continuous	3710-84-7	0.09	NCCW
3	ChemTreat BL1302	Alkalinity Adjustment	Boiler Water Treatment	Sodium hydroxide	Bluegill Sunfish: 198 mg/L Mosquito Fish: 250 mg/L	Not Used	Not Used	1310-73-2	Not Used	Not Used
4	ChemTreat BL1513	CO ₂ Neutralizer	Steam Line Treatment	Morpholine Cyclohexylamine	Fathead Minnow: 354 mg/L	Not Used	Not Used	110-91-8 108-91-8	Not Used	Not Used
5	ChemTreat BL1771	Dispersant	Boiler Water Treatment	Tetrapotassium pyrophosphate	Not determined	Not Used	Not Used	7320-34-5	Not Used	Not Used
6	ChemTreat BL8681	Dispersant	Boiler Water Treatment	Sodium bisulfite Tetrapotassium pyrophosphate Potassium hydroxide	Fathead Minnow: >1,000 mg/L	Not Used	Not Used	7631-90-5 7320-34-5 1310-58-3	Not Used	Not Used
7	ChemTreat BL8760	Dispersant	Boiler Water Treatment	Sodium sulfite Sodium phosphate, tribasic Potassium hydroxide	Not determined	1,036	Monthly	7757-83-7 7601-54-9 1310-58-3	0.17	Boiler
8	ChemTreat CD23	Raw Material	Cooling Water Treatment	Sodium hypochlorite	Bluegill Sunfish: 0.6 mg/L Ceriodaphnia Dubia: 1.23 ppm Fathead Minnow: 1.19 ppm	140,963	Continuous	7681-52-9	19.67	CCW
9	ChemTreat CD24	Raw Material	Cooling Water Treatment	Sulfuric acid	Bluegill Sunfish: 10.5 ppm	185,300	Continuous	7664-93-9	25.86	CCW
10	ChemTreat CL25	Biocide	Cooling Water Microbiocide and Chlorine	Sodium chlorite	Daphnia Magna: 0.29 mg/L (48-hr LC50)	191,500	Continuous	7758-19-2	26.72	CCW
11	ChemTreat CL41	Biocide	Cooling Water Microbiocide	Sodium bromide	Bluegill Sunfish: >1,000 mg/L Rainbow Trout: >1,000 mg/L Fathead Minnow: >1,000 mg/L Inland Silverside: >1,000 mg/L	23,880	Continuous	7647-15-6	3.33	CCW and NCCW
12	ChemTreat CL49	Biocide	Cooling Water Microbiocide	Sodium chlorosulfamate Sodium bromosulfamate Sodium hydroxide	Bluegill Sunfish: 3.8 mg/L Algae: 2.6 mg/L	Not Used	Not Used	17172-27-9 134509-56-1 1310-73-2	Not Used	Not Used
13	ChemTreat CL206	Biocide	Cooling Water and Reverse Osmosis Disinfectant	2-(2-Dibromo-3-nitropropionamide)	Bluegill Sunfish: 3.8 mg/L Rainbow Trout: 5 mg/L Fathead Minnow: 6.8 mg/L Sheepshead Minnow: 7 mg/L	Not Used	Not Used	10222-01-2	Not Used	Not Used
14	ChemTreat CL215	Biocide	Cooling Water Microbiocide	5-chloro-2-methyl-4-isothiazolin-3-one 2-methyl-4-isothiazolin-3-one	Bluegill Sunfish: 23 mg/L Rainbow Trout: 16 mg/L	336	4/year	26172-55-4 2682-20-4	0.05	NCCW
15	ChemTreat CL1443	Inhibitor	Cooling Water Treatment	Sodium hexametaphosphate	Fathead Minnow: 1,768 mg/L	305,514	Continuous	10124-56-8	42.63	CCW
16	ChemTreat CL2032	Biocide	Cooling Water Microbiocide and Algicide	2-(tert-butylamino)-4-chloro-6-(ethylamino)-s-triazine	Fathead Minnow: 4,364 mg/L (48-hr LC50) Daphnia Pulex: 5,750 mg/L (48-hr LC50)	Not Used	Not Used	5915-41-3	Not Used	Not Used
17	ChemTreat CL2840D	Inhibitor	Closed System Treatment	Nitrous acid, sodium salt Sodium hydroxide Tolyltriazole, sodium salt	Not determined	2,408	Monthly	7632-00-0 1310-73-2 64665-57-2	0.34	NCCW
18	ChemTreat CL3857	Inhibitor	Cooling Water Treatment	2-Phosphono-1,2,4-butane tricarboxylic acid	Fathead Minnow: >1,000 mg/L	6,570	Continuous	37971-36-1	0.92	NCCW
19	ChemTreat CL4125	Inhibitor	Cooling Water Treatment	Tolyltriazole, sodium salt	Bluegill Sunfish: 173 mg/L Rainbow Trout: 25 mg/L Fathead Minnow: 70-154 mg/L	10,072	Continuous	64665-57-2	1.41	NCCW
20	ChemTreat CL4127	Inhibitor	Cooling Water Treatment	Tolyltriazole, sodium salt Benzotriazole	Fathead Minnow: 198 mg/L	4,374	Continuous	64665-57-2 95-14-7	0.61	NCCW
21	ChemTreat CL4847	Inhibitor	Cooling Water Treatment	2-Phosphono-1,2,4-butanetricarboxylic acid, sodium salt Sodium hydroxide Sodium molybdate Tolyltriazole, sodium salt	Not determined	Not Used	Not Used	40372-66-5 1310-73-2 7631-95-0 64665-57-2	Not Used	Not Used
22	ChemTreat CL5456	Inhibitor	Cooling Water Treatment Dispersant	2-Phosphono-1,2,4-butane tricarboxylic acid	Fathead Minnow: 6,598 mg/L	Not Used	Not Used	37971-36-1	Not Used	Not Used
23	ChemTreat CL5852	Inhibitor	Cooling Water Treatment Dispersant	1-Hydroxyethylidene-1,1-diphosphonic acid, disodium salt Sodium phosphate, monobasic	Ceriodaphnia Dubia: 2,102 mg/L (48-hr LC50) Fathead Minnow: >10,000 mg/L	63,430	Continuous	7414-83-7 7558-80-7	8.85	NCCW
24	ChemTreat CL6030	Alkalinity Adjustment	Air Washer Treatment	Sodium tetraborate pentahydrate Potassium hydroxide	Fathead Minnow: 225 mg/L	0	Continuous	12179-04-3 1310-58-3	0.00	NCCW
25	ChemTreat DG500	Surfactant	Cleaner	There are no hazardous ingredients in this product as defined in 29 CFR 1910-1200.	Not determined	10,340	Continuous	Proprietary	1.44	Cleaner
26	ChemTreat P835E	Flocculant	Water Clarification/Solids Conditioning	There are no hazardous ingredients in this product as defined in 29 CFR 1910-1200.	Sheepshead Minnow: 117.5 mg/L Fathead Minnow: 5.815 mg/L	Not Used	Not Used	Proprietary	Not Used	Not Used
27	ChemTreat P873L	Coagulant	Water Clarification Agent	Poly(dimethyldiallylammonium chloride)	Fathead Minnow: 2.253 mg/L Rainbow Trout: 0.6 mg/L	196,173	Continuous	26062-79-3	27.37	CCW
28	ChemTreat P890L	Coagulant	Water Clarification Agent	Polyaluminum chloride	Fathead Minnow: 230.4 mg/L Sheepshead Minnow: >1,000 mg/L	46,754	Continuous	1327-41-9	6.52	Emulsion Breaking
29	ChemTreat P893L	Coagulant	Water Clarification Agent	There are no hazardous ingredients in this product as defined in 29 CFR 1910-1200.	Fathead Minnow: 4.218 mg/L	Not Used	Not Used	Proprietary	Not Used	Not Used
30	ChemTreat UC1000	Inhibitor	Closed System Treatment	Morpholine Tolyltriazole, sodium salt	Not determined	Not Used	Not Used	110-91-8 64665-57-2	Not Used	Not Used

Number	Product Name	Product Type	Product Use	Active Component(s)	96-Hour LC50	Quantity Used (lbs/yr) ¹	Frequency of Use	CAS Registry Number	Discharge Concentration ² (lbs/MG)	Location of Use
31	ChemTreat UC2000	Inhibitor	Closed System Treatment	Diethylhydroxylamine	Fathead Minnow: 0.732 mg/L	Not Used	Not Used	3710-84-7	Not Used	Not Used
32	ChemTreat CL1441	Inhibitor	Cooling Water Treatment	Hydroquinone	Inland Silverside: 1.3 mg/L	Not Used	Not Used	123-31-9	Not Used	Not Used
33	ChemTreat CL16	pH Adjustment	Cooling Water Treatment	Tetrapotassium pyrophosphate	Fathead Minnow: 916 mg/L	Not Used	Not Used	7320-34-5	Not Used	Not Used
34	ChemTreat CL4075	Cleaner	Cooling water Treatment	Citric Acid	Fathead Minnow: >1000 mg/L	Not Used	Not Used	77-92-9	Not Used	Not Used
35	Quadraperse® CL4800	Dispersant	Cooling Water Treatment	1-Hydroxyethylidene-1,1-diphosphonic acid	Rainbow Trout: 7,906 mg/L	Not Used	Not Used	2809-21-4	Not Used	Not Used
36	ChemTreat CN220	Degreaser	Cleaner	1-Hydroxyethylidene-1,1-diphosphonic acid	Rainbow Trout: 300 mg/L	Not Used	Not Used	2809-21-4	Not Used	Not Used
37	Eskaphor K 6952	Degreaser	Degreasing Agent	There are no hazardous ingredients in this product as defined in 29 CFR 1910.1200.	Fathead Minnow: >1,000 mg/L Inland Silverside: >10,000 mg/L	Not Used	Not Used	Proprietary	Not Used	Not Used
38	ChemTreat P803	Flocculant	Water Clarification/Solids Conditioning	Silicic acid, disodium salt	Not determined	2,188	4/year	6834-92-0	0.31	Cleaner
39	ChemTreat P812A	Flocculant	Water Clarification/Solids Conditioning	Ethylene diamine tetraacetic acid, tetrasodium salt	Not determined	250	Continuous	64-02-8	0.03	CCW
40	ChemTreat P841L	Coagulant	Water Clarification Agent	1-Methoxy-2-propanol	Not determined	6,600	Continuous	107-98-2	0.92	CCW
41	ChemTreat CL2841	Inhibitor	Closed System Treatment	Potassium hydroxide solution	Not determined	22,840	Continuous	1310-58-3	3.19	Emulsion Breaking
42	ChemTreat CT130	Chlorite Scavenger	Dechlorination Treatment	Adipic acid	Not determined	3,000	Continuous	124-04-9	0.42	CCW
43	ChemTreat CD260	Chlorite Scavenger	Dechlorination Treatment	2-Propenoic acid, polymer with NNN-trimethyl-2-((1-oxo-2-propenyl)oxy)ethanaminium chloride	Not determined	3,000	Continuous	69418-26-4	0.42	CCW
44	ChemTreat FO120	Defoamer	Defoamer	There are no hazardous ingredients in this product as defined in 29 CFR 1910.1200.	Fathead Minnow: 670 mg/L Bluegill Sunfish: 180 mg/L Rainbow Trout: 130 mg/L	Not Used	Not Used	Proprietary	Not Used	Not Used
45	ChemTreat P8141E	Flocculant	Water Clarification/Solids Conditioning	Tannin, ammonium salts	Rainbow Trout: 168 mg/L Fathead Minnow: 183 mg/L	Not Used	Not Used	71631-09-9	Not Used	Not Used
46	ChemTreat P817E	Flocculant	Water Clarification/Solids Conditioning	Nitrous acid, sodium salt	Not determined	41,400	Continuous	7632-00-0	5.78	CCW
47	ChemTreat UC3002	Alkalinity Adjustment	Scale Control	Sodium hydroxide	Not determined	Not Used	Not Used	1310-73-2	Not Used	Not Used
				Benzotriazole, sodium salt	Not determined	Not Used	Not Used	15217-42-2	Not Used	Not Used
				Sodium tetraborate pentahydrate	Not determined	Not Used	Not Used	12179-04-3	Not Used	Not Used
				Sodium molybdate	Not determined	Not Used	Not Used	7631-95-0	Not Used	Not Used
				Sodium thiosulfate	Fathead Minnow: >10000 mg/l	3,000	Continuous	7772-98-7	0.42	CCW
				Ferrous Chloride	Not determined	3,000	Continuous	7758-94-3	0.42	CCW
				Hydrochloric acid	Not determined	3,000	Continuous	7647-01-0	0.42	CCW
				There are no hazardous ingredients in this product as defined in 29 CFR 1910.1200.	Fathead Minnow: 181.841 mg/l	Not Used	Not Used	Proprietary	Not Used	Not Used
				Alcohols (C10-16) ethoxylated	Not determined	Not Used	Not Used	68002-97-1	Not Used	Not Used
				Alcohols (C12-16) ethoxylated	Not determined	Not Used	Not Used	68551-12-2	Not Used	Not Used
				Alcohols (C12-14-secondary) ethoxylated	Not determined	Not Used	Not Used	84133-50-6	Not Used	Not Used
				Alcohols (C12-C14) ethoxylated	Not determined	Not Used	Not Used	68439-50-9	Not Used	Not Used
				Petroleum distillate hydrotreated light	Not determined	Not Used	Not Used	64742-47-8	Not Used	Not Used
				There are no hazardous ingredients in this product as defined in 29 CFR 1910.1200.	Inland Silverside: 320 mg/l Fathead Minnow: 104 mg/l	41,400	Continuous	N/A	5.78	CCW
				Potassium carbonate	Not determined	Not Used	Not Used	584-08-7	Not Used	Not Used
				2-Phosphono-1,2,4-butane tricarboxylic acid	Not determined	Not Used	Not Used	37971-36-1	Not Used	Not Used

Acronyms:

BD - Blowdown
CAS - Chemical Abstracts Service
CCW - Contact Cooling Water
CFR - Code of Federal Regulations
CO₂ - Carbon Dioxide
lbs/MG - Pounds Per Million Gallon
lbs/yr - Pounds Per Year
LC50 - The effluent concentration which is lethal to 50 percent of the test organisms in the time period prescribed by the test
mg/L - Milligrams Per Liter
N/A - Not Applicable
N/D - Not Determined
NCCW - Non-Contact Cooling Water
ppm - Parts Per Million
Outokumpu - Outokumpu Stainless USA, LLC

Notes:
1. Quantity used during 2015
2. These components are not routinely tested. Concentration shown assumes components are not degraded or otherwise transformed by the various treatment units before discharge.

Prepared by: MLR 12-08-15
Checked by: TBD 12-08-15; Travis Scoper, ChemTreat Chemicals 12-18-15

FORM 1 GENERAL		U.S. ENVIRONMENTAL PROTECTION AGENCY GENERAL INFORMATION Consolidated Permits Program <i>(Read the "General Instructions" before starting.)</i>	I. EPA I.D. NUMBER			
			B	110039169333	T/A	C
			F			D
			1	2	13	14

LABEL ITEMS	PLEASE PLACE LABEL IN THIS SPACE	GENERAL INSTRUCTIONS If a preprinted label has been provided, affix it in the designated space. Review the information carefully. If any of it is incorrect, cross through it and enter the correct data in the appropriate fill-in area below. Also, if any of the preprinted data is absent (the area to the left of the label space lists the information that should appear), please provide it in the proper fill-in area(s) below. If the label is complete and correct, you need not complete Items I, III, V, and VI (except VI-B which must be completed regardless). Complete all items if no label has been provided. Refer to the instructions for detailed item descriptions and for the legal authorizations under which this data is collected.
I. EPA I.D. NUMBER		
III. FACILITY NAME		
V. FACILITY MAILING ADDRESS		
VI. FACILITY LOCATION		

II. POLLUTANT CHARACTERISTICS

INSTRUCTIONS: Complete A through J to determine whether you need to submit any permit application forms to the EPA. If you answer "yes" to any questions, you must submit this form and the supplemental form listed in the parenthesis following the question. Mark "X" in the box in the third column if the supplemental form is attached. If you answer "no" to each question, you need not submit any of these forms. You may answer "no" if your activity is excluded from permit requirements; see Section C of the instructions. See also, Section D of the instructions for definitions of bold-faced terms.

SPECIFIC QUESTIONS	Mark "X"			SPECIFIC QUESTIONS	Mark "X"		
	YES	NO	FORM ATTACHED		YES	NO	FORM ATTACHED
A. Is this facility a publicly owned treatment works which results in a discharge to waters of the U.S.? (FORM 2A)		X		B. Does or will this facility (either existing or proposed) include a concentrated animal feeding operation or aquatic animal production facility which results in a discharge to waters of the U.S.? (FORM 2B)		X	
C. Is this a facility which currently results in discharges to waters of the U.S. other than those described in A or B above? (FORM 2C)	X			D. Is this a proposed facility (other than those described in A or B above) which will result in a discharge to waters of the U.S.? (FORM 2D)	X		X
E. Does or will this facility treat, store, or dispose of hazardous wastes? (FORM 3)		X		F. Do you or will you inject at this facility industrial or municipal effluent below the lowermost stratum containing, within one quarter mile of the well bore, underground sources of drinking water? (FORM 4)		X	
G. Do you or will you inject at this facility any produced water or other fluids which are brought to the surface in connection with conventional oil or natural gas production, inject fluids used for enhanced recovery of oil or natural gas, or inject fluids for storage of liquid hydrocarbons? (FORM 4)		X		H. Do you or will you inject at this facility fluids for special processes such as mining of sulfur by the Frasch process, solution mining of minerals, in situ combustion of fossil fuel, or recovery of geothermal energy? (FORM 4)		X	
I. Is this facility a proposed stationary source which is one of the 28 industrial categories listed in the instructions and which will potentially emit 100 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an attainment area? (FORM 5)	X			J. Is this facility a proposed stationary source which is NOT one of the 28 industrial categories listed in the instructions and which will potentially emit 250 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an attainment area? (FORM 5)		X	

III. NAME OF FACILITY

c	1	SKIP	AM/NS Calvert, LLC
---	---	------	--------------------

IV. FACILITY CONTACT

A. NAME & TITLE (last, first, & title)		B. PHONE (area code & no.)	
c	2	Jordan Collins, Team Manager, Environmental	(251) 289-3833

V. FACILITY MAILING ADDRESS

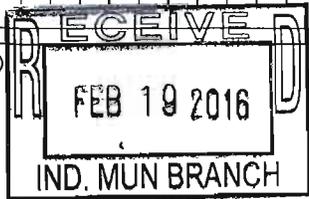
A. STREET OR P.O. BOX		
c	3	1 AM/NS Way

B. CITY OR TOWN		C. STATE	D. ZIP CODE
c	4	Calvert	AL 36513

VI. FACILITY LOCATION

A. STREET, ROUTE NO. OR OTHER SPECIFIC IDENTIFIER		
c	5	1 AM/NS Way

B. COUNTY NAME		C. CITY OR TOWN		D. STATE	E. ZIP CODE	F. COUNTY CODE (if known)
Mobile		Calvert		AL	36513	01097



CONTINUED FROM THE FRONT

VII. SIC CODES (4-digit, in order of priority)										
A. FIRST					B. SECOND					
C	7	3	3	1	2	C	7	3	4	7
(specify) Steel Works, Blast Furnaces, And Rolling And Finishing Mills					(specify) Electroplating, Plating, Polishing, Anodizing, and Coloring					
15	16	17	18	19	15	16	17	18	19	
C. THIRD					D. FOURTH					
C	7				C	7				
(specify)					(specify)					
15	16	17	18	19	15	16	17	18	19	

VIII. OPERATOR INFORMATION										
A. NAME										
C	8	AM/NS Calvert, LLC								B. Is the name listed in Item VIII-A also the owner?
15	16									<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO

C. STATUS OF OPERATOR (Enter the appropriate letter into the answer box: if "Other," specify.)										D. PHONE (area code & no.)					
F = FEDERAL			M = PUBLIC (other than federal or state)			P (specify) Private				A (251) 289-3833					
S = STATE			O = OTHER (specify)												
P = PRIVATE															
15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30

E. STREET OR P.O. BOX									
1 AM/NS Way									
25	26	27	28	29	30	31	32	33	34

F. CITY OR TOWN										G. STATE	H. ZIP CODE	IX. INDIAN LAND			
C	B	Calvert								AL	36513	Is the facility located on Indian lands?			
15	16									40	41	42	43	44	45
										<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO					

X. EXISTING ENVIRONMENTAL PERMITS													
A. NPDES (Discharges to Surface Water)					D. PSD (Air Emissions from Proposed Sources)								
C	9	N	AL0080233			C	9	P	Title V Major 503-0095				
15	16	17	18	19	30	15	16	17	18	30			
B. UIC (Underground Injection of Fluids)					E. OTHER (specify)								
C	9	U	N/A			C	9		SAM-2007-635-DMY/MS-07-13				
15	16	17	18	19	30	15	16	17	18	30	(specify) Section 401 Water Quality Certification / Groundwater Extraction		
C. RCRA (Hazardous Wastes)					E. OTHER (specify)								
C	9	R	ALR000042689			C	9		IU 41-49-00830				
15	16	17	18	19	30	15	16	17	18	30	(specify) SID Permit		

XI. MAP
 Attach to this application a topographic map of the area extending to at least one mile beyond property boundaries. The map must show the outline of the facility, the location of each of its existing and proposed intake and discharge structures, each of its hazardous waste treatment, storage, or disposal facilities, and each well where it injects fluids underground. Include all springs, rivers, and other surface water bodies in the map area. See instructions for precise requirements.

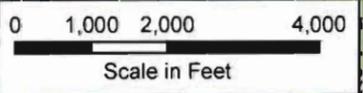
XII. NATURE OF BUSINESS (provide a brief description)
 The carbon steel mill, owned and operated by AM/NS Calvert, LLC, receives carbon steel slabs by barge, truck, or rail. The slabs are reheated and rolled to form a long strip in the hot strip mill (HSM). From the HSM, the hot-rolled strips are prepared for sale or proceed to the coupled pickling line and Tandem Mill (cold rolling) or sent to the single-stand pickling lines for further processing. After pickling or pickling/cold rolling, the strips are either sold as is or further processed by galvanizing, annealing, and/or skin-rolling prior to sale.

 AM/NS is planning to install a new acid cleaning and nickel plating section in their existing Number 2 Continuous Anneal Line. The wastewater generated from this process will be treated at a dedicated wastewater treatment system prior to being sent to the Tombigbee River via an existing diffuser.

XIII. CERTIFICATION (see instructions)
 I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my inquiry of those persons immediately responsible for obtaining the information contained in the application, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME & OFFICIAL TITLE (type or print)	B. SIGNATURE	C. DATE SIGNED
Robrecht Himpe, President		15/02/2016

COMMENTS FOR OFFICIAL USE ONLY									
C									
15	16	17	18	19	20	21	22	23	24



Legend

- CAL 2 Nickel Plating System
- Nickel Flash Wastewater Treatment System
- ▲ Discharge Structure
- ▲ Cooling Water Intake Structure
- 1 Mile Buffer of Property Boundary
- Approximate Site Boundary

Source: ESRI Web Map Service/ USA Topomaps

NPDES Form 1

Calvert Mill

Topographic Map

Prepared by/Date:
CLS-11/17/15

Checked by/Date:
MML-11/17/15

Project Number:
6376151037.01

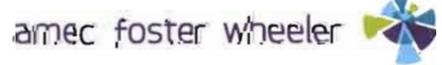


Figure Number:
1

B. Attach a line drawing showing the water flow through the facility. Indicate sources of intake water, operations contributing wastewater to the effluent, and treatment units labeled to correspond to the more detailed descriptions in Item III-A. Construct a water balance on the line drawing by showing average flows between intakes, operations, treatment units, and outfalls. If a water balance cannot be determined (e.g., for certain mining activities), provide a pictorial description of the nature and amount of any sources of water and any collection or treatment measures.

C. Except for storm runoff, leaks, or spills, will any of the discharges described in Items III-A be intermittent or seasonal?

YES (complete the following table)

NO (go to Section IV)

Outfall Number	1. Frequency		2. Flow		
	a. Days Per Week (specify average)	b. Months Per Year (specify average)	a. Maximum Daily Flow Rate (in mgd)	b. Maximum Total Volume (specify with units)	c. Duration (in days)

IV. Production

If there is an applicable production-based effluent guideline or NSPS, for each outfall list the estimated level of production (projection of actual production level, not design), expressed in the terms and units used in the applicable effluent guideline or NSPS, for each of the first 3 years of operation. If production is likely to vary, you may also submit alternative estimates (attach a separate sheet).

Year	A. Quantity Per Day	B. Units Of Measure	c. Operation, Product, Material, etc. (specify)

CONTINUED FROM THE FRONT	EPA I.D. NUMBER (copy from Item 1 of Form 1) 110039169333	Outfall Number TBD
--------------------------	--------------------------------------------------------------	-----------------------

V. Effluent Characteristics

A and B: These items require you to report estimated amounts (both concentration and mass) of the pollutants to be discharged from each of your outfalls. Each part of this item addresses a different set of pollutants and should be completed in accordance with the specific instructions for that part. Data for each outfall should be on a separate page. Attach additional sheets of paper if necessary.

General Instructions (See table 2D-2 for Pollutants)

Each part of this item requests you to provide an estimated daily maximum and average for certain pollutants and the source of information. Data for all pollutants in Group A, for all outfalls, must be submitted unless waived by the permitting authority. For all outfalls, data for pollutants in Group B should be reported only for pollutants which you believe will be present or are limited directly by an effluent limitations guideline or NSPS or indirectly through limitations on an indicator

1. Pollutant	2. Maximum Daily Value (include units)	3. Average Daily Value (include units)	4. Source (see instructions)
Flow	476 gpm	375 gpm	4 - Design value
Biochemical Oxygen Demand	3.9 mg/L, 22.3 lb/d	< 2.5 mg/L, < 11 lb/d	3 - Data from similar plant, untreated sample
Chemical Oxygen Demand	11 mg/L, 62.92 lb/d	< 10.2 mg/L, < 46 lb/d	3 - Data from similar plant, untreated sample
Total Organic Carbon	<5 mg/L, <28.6 lb/d	< 5.0 mg/L, < 23 lb/d	3 - Data from similar plant, untreated sample
Total Suspended Solids	60 mg/L, 343 lb/d	14.7 mg/L, 67 lb/d	Regulatory requirement (40 CFR §433.16)
Ammonia (as N)	<10 mg/L, <57 lb/d	< 1.0 mg/L, 4.6 lb/d	Expected Treatment Performance
Temperature (winter)	40 °C	38 °C	3 - Data from similar plant, untreated sample
Temperature (summer)	40 °C	38 °C	3 - Data from similar plant, untreated sample
pH	6.0 S.U.	9.0 S.U.	Expected Treatment Performance
Color	100 C.U.	55 C.U.	3 - Data from similar plant, untreated sample
Nitrate-Nitrite (as N)	0.34 mg/L, 1.945 lb/d	0.34 mg/L, 1.5 lb/d	3 - Data from similar plant, untreated sample
Oil and Grease	2.3 mg/L, 13.156 lb/d	< 1.8 mg/L, < 8 lb/d	3 - Data from similar plant, untreated sample
Phosphorus (as P) Total	0.31 mg/L, 1.773 lb/d	0.24 mg/L, 1.1 lb/d	3 - Data from similar plant, untreated sample
Sulfate (as SO ₄)	8,400 mg/L, 48,048 lb/d	< 5,008 mg/L, < 22,790 lb/d	3 - Data from similar plant, untreated sample
Barium, Total	0.078 mg/L, 0.446 lb/d	0.025 mg/L, 0.12 lb/d	3 - Data from similar plant, untreated sample
Boron, Total	0.19 mg/L, 1.087 lb/d	0.025 mg/L, 0.11 lb/d	3 - Data from similar plant, untreated sample
Cobalt, Total	0.15 mg/L, 0.858 lb/d	0.001 mg/L, 0.004 mg/L	3 - Data from similar plant, untreated sample
Iron, Total	<10 mg/L, <57 lb/d	<1 mg/L, <4.6 lb/d	Expected Treatment Performance
Magnesium, Total	34 mg/L, 194 lb/d	24 mg/L, 110 lb/d	3 - Data from similar plant, untreated sample
Molybdenum, Total	0.0071 mg/L, 0.041 lb/d	0.005 mg/L, 0.023 lb/d	3 - Data from similar plant, untreated sample
Manganese, Total	2.2 mg/L, 12.6 lb/d	0.020 mg/L, 0.093 lb/d	3 - Data from similar plant, untreated sample
Antimony, Total	0.067 mg/L, 0.383 lb/d	0.017 mg/L, 0.076 lb/d	3 - Data from similar plant, untreated sample
Arsenic, Total	0.024 mg/L, 0.137 lb/d	0.0071 mg/L, 0.032 lb/d	3 - Data from similar plant, untreated sample
Beryllium, Total	0.00004 mg/L, 0.00023 lb/d	< 0.000032 mg/L, < 0.00014 lb/d	3 - Data from similar plant, untreated sample
Cadmium, Total	0.00061 mg/L, 0.0035 lb/d	0.000031 mg/L, 0.00014 lb/d	3 - Data from similar plant, untreated sample
Chromium, Total	0.005 mg/L, 0.026 lb/d	< 0.00083 mg/L, < 0.0038 lb/d	3 - Data from similar plant, untreated sample
Copper, Total	< 0.12 mg/L, < 0.686 lb/d	< 0.0011 mg/L, < 0.0048 lb/d	3 - Data from similar plant, untreated sample

1. Pollutant	2. Maximum Daily Value (include units)	3. Average Daily Value (include units)	4. Source (see instructions)
Lead, Total	0.071 mg/L, 0.406 lb/d	< 0.00022 mg/L, < 0.0010 lb/d	3 - Data from similar plant, untreated sample
Nickel, Total	3.98 mg/L, 23 lb/d	2.38 mg/L, 11 lb/d	Regulatory requirement (40 CFR §433.16)
Selenium, Total	0.0016 mg/L, 0.0092 lb/d	0.0011 mg/L, 0.0052 lb/d	3 - Data from similar plant, untreated sample
Silver, Total	0.000058 mg/L, 0.000332 lb/d	< 0.000015 mg/L, < 0.000069 lb/d	3 - Data from similar plant, untreated sample
Thallium, Total	0.00004 mg/L, 0.0002 lb/d	0.000031 mg/L, 0.00014 lb/d	3 - Data from similar plant, untreated sample
Zinc, Total	0.058 mg/L, 0.332 lb/d	0.030 mg/L, 0.138 lb/d	3 - Data from similar plant, untreated sample
Cyanide, Total	<0.003 mg/L, <0.017 lb/d	< 0.0030 mg/L, < 0.014 lb/d	3 - Data from similar plant, untreated sample
Bromide	<5,000 mg/L, <28,600 lb/d	< 5,000 mg/L, < 23,000 lb/d	3 - Data from similar plant, untreated sample
Sulfide (as S)	<0.033 mg/L, <0.189 lb/d	< 0.033 mg/L, < 0.15 lb/d	3 - Data from similar plant, untreated sample
Sulfite (as SO ₃)	<1.00 mg/L, <5.72 lb/d	< 1.0 mg/L, < 4.55 lb/d	3 - Data from similar plant, untreated sample
Surfactants	<10.0 mg/L, <57.20 lb/d	< 10.0 mg/L, < 46 lb/d	3 - Data from similar plant, untreated sample
Fluoride	<0.060 mg/L, <0.343 lb/d	< 0.060 mg/L, < 0.273 lb/d	3 - Data from similar plant, untreated sample
Aluminum, Total	<0.00055 mg/L, <0.0031 lb/d	< 0.00055 mg/L, <0.0025 lb/d	3 - Data from similar plant, untreated sample
Tin, Total	<0.0010 mg/L, <0.0057 lb/d	<0.0010 mg/L, <0.0046 lb/d	3 - Data from similar plant, untreated sample
Titanium, Total	<0.0030 mg/L, <0.017 lb/d	<0.0030 mg/L, <0.014 lb/d	3 - Data from similar plant, untreated sample

CONTINUED FROM THE FRONT	EPA I.D. NUMBER (copy from Item 1 of Form 1) 110039169333	
--------------------------	--------------------------------------------------------------	--

C. Use the space below to list any of the pollutants listed in Table 2D-3 of the instructions which you know or have reason to believe will be discharged from any outfall. For every pollutant you list, briefly describe the reasons you believe it will be present.

1. Pollutant	2. Reason for Discharge
N/A	

VI. Engineering Report on Wastewater Treatment

A. If there is any technical evaluation concerning your wastewater treatment, including engineering reports or pilot plant studies, check the appropriate box below.
 Report Available No Report

B. Provide the name and location of any existing plant(s) which, to the best of your knowledge resembles this production facility with respect to production processes, wastewater constituents, or wastewater treatments.

Name I/N Tek	Location 30755 Edison Rd. New Carlisle, IN 46552
-----------------	--------------------------------------------------------

EPA I.D. NUMBER (copy from Item 1 of Form 1)
110039169333

VII. Other Information (Optional)

Use the space below to expand upon any of the above questions or to bring to the attention of the reviewer any other information you feel should be considered in establishing permit limitations for the proposed facility. Attach additional sheets if necessary.

VIII. CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

A. Name and Official Title (type or print)

Robrecht Himpe, President

B. Phone No.

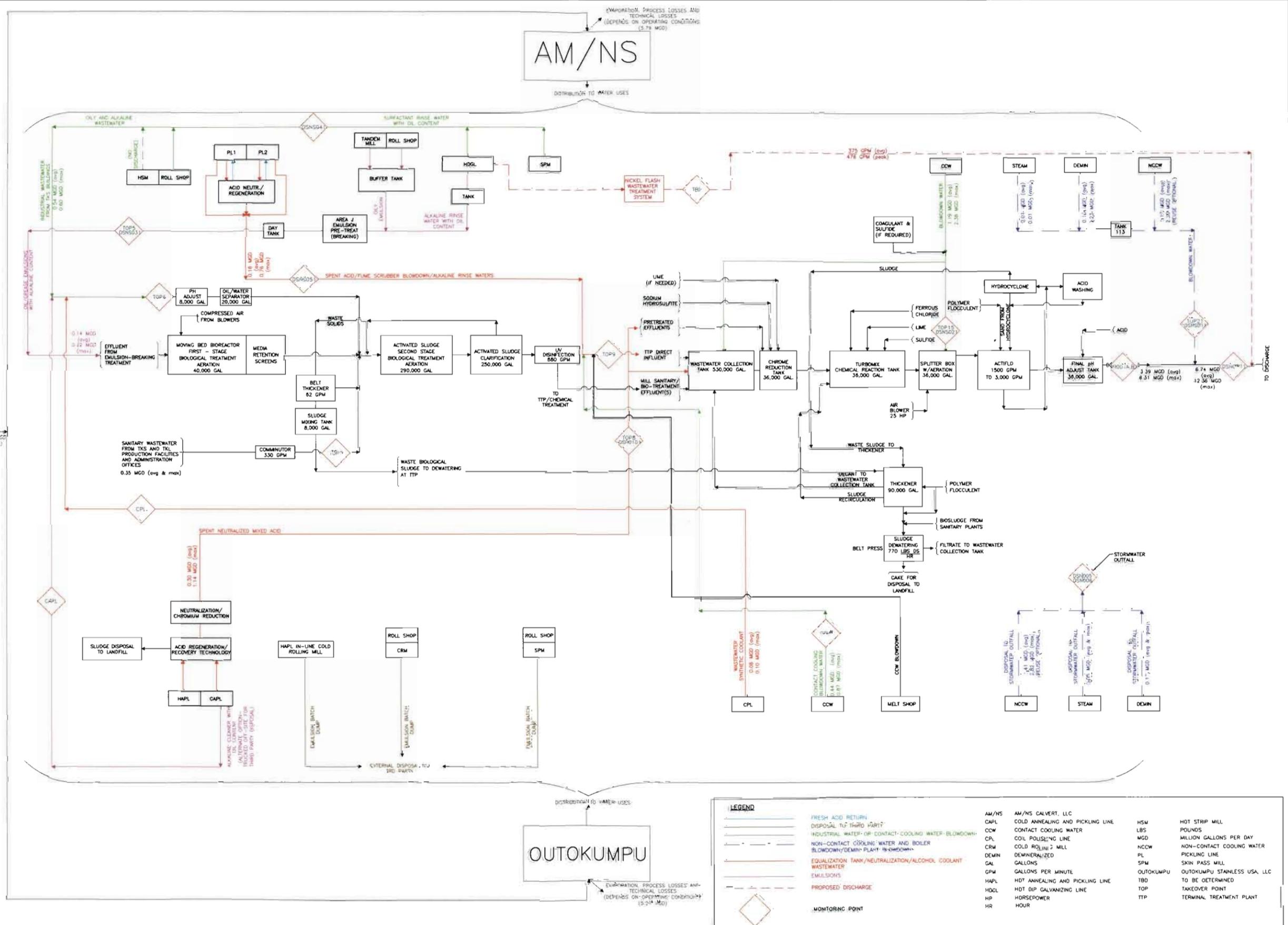
(251) 289-3000

C. Signature



D. Date Signed

11/02/2016



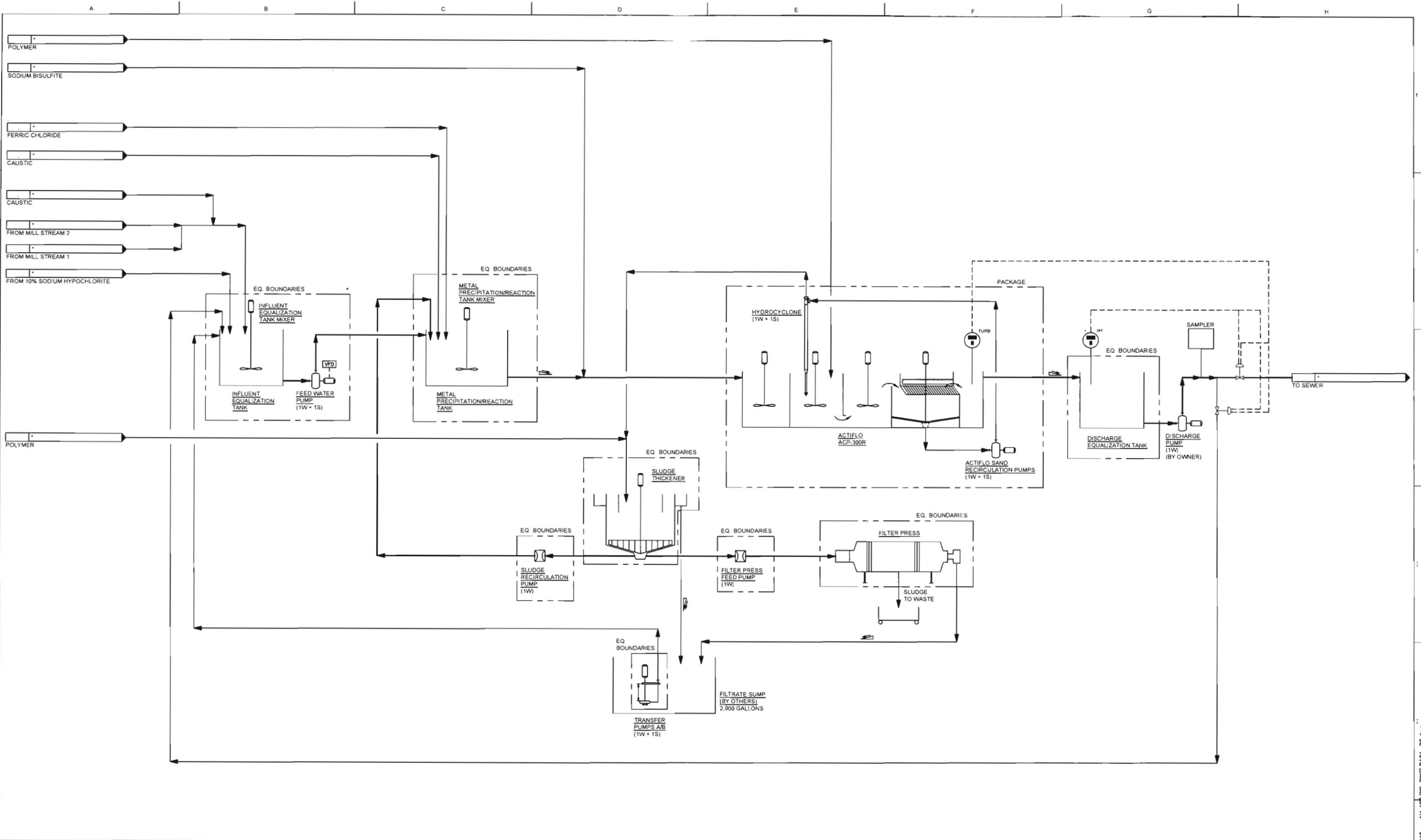
PREPARED BY:
 M. LATALLADI
 DRAWN BY:
 T. GLADSTONE
 CHECKED BY:
 M. LATALLADI
 IN CHARGE:
 R. MAROTTE
 DATE: 01/29/2015

PERMIT APPLICATION
 CALVERT, AL
 amec foster wheeler
 amec foster wheeler
 ENVIRONMENT & INFRASTRUCTURE, INC.
 1075 BIG SHAWNY ROAD, NW, SUITE 100
 KENNESAW, GEORGIA 30144 (770) 421-3400

CALVERT MILL
PROCESS FLOW DIAGRAM
 SCALE: AS SHOWN
 CONTRACT: 6376-15-1037
 SHEET NO: FIG 2

NOTE: FLOWS SHOWN ARE DESIGN AVERAGE AND PEAK FLOWS.

© COPYRIGHT 2015 AMEC FOSTER WHEELER
 01/29/2015 11:28AM



NOTES:
 1. EQUIPMENT SUPPLIED BY VEOLIA. INTERCONNECTING PIPING DESIGNED, SUPPLIED AND INSTALLED BY OTHERS

REV	NO	ISSUE DATE	DESIGNED BY	CHECKED BY	APPROVED BY	DESCRIPTION
	C	1-12-16	M. BADAMI	K. BENSON		ISSUED FOR PROPOSAL
	B	12-1-15	M. BADAMI	K. BENSON		ISSUED FOR PROPOSAL
	A	7-16-15	M. BADAMI	K. BENSON		ISSUED FOR PROPOSAL



INDUSTRIAL PROJECTS, MOON TOWNSHIP, PA 15108 USA TEL: 1-412-409-6000

ALL INFORMATION CONTAINED ON THIS DOCUMENT IS THE PROPERTY OF VEOLIA WATER TECHNOLOGIES. THE DESIGN CONCEPTS AND INFORMATION CONTAINED HEREIN ARE PROPRIETARY TO VEOLIA AND ARE SUBMITTED IN CONFIDENCE. THEY ARE NOT TRANSFERABLE AND MUST BE USED ONLY FOR THE PURPOSE FOR WHICH THE DOCUMENT IS EXPRESSLY SUBMITTED. THEY MUST NOT BE DISCLOSED, REPRODUCED, LOANED OR USED IN ANY OTHER MANNER WITHOUT THE EXPRESS WRITTEN CONSENT OF VEOLIA. VEOLIA ASSUMES NO RESPONSIBILITY OR LIABILITY FOR THE USE OF THIS DOCUMENT OR THE DESIGN CONCEPTS AND INFORMATION CONTAINED HEREIN FOR ANY OTHER PROJECT OR IN A MANNER THAT DOES NOT RELATE TO THE FITNESS OR PURPOSE OF THIS DOCUMENT. IN NO EVENT SHALL THIS DOCUMENT OR THE DESIGN CONCEPTS AND INFORMATION CONTAINED HEREIN BE USED IN ANY MANNER DETRIMENTAL TO THE INTEREST OF VEOLIA. ALL PATENT RIGHTS ARE RESERVED. ACCEPTANCE OF THE DELIVERY OF THE DOCUMENT CONSTITUTES AGREEMENT TO THESE TERMS AND CONDITIONS.

SCALE	NONE	DRAWN BY	W. KONYHA
TITLE	AMNS CALVERT LLC NICKEL FLASH WWTP CALVERT, AL		
	PROCESS FLOW DIAGRAM		
CONTRACT NO	5600115049	DWG NO	P101-00
		REV	C

REQUIRED INFORMATION FOR MIXING ZONE MODELING

GENERAL INFORMATION

1. Applicant Name: AM/NS Calvert, LLC
2. Permit No.: AL0080233
3. Project Name (if different from applicant): Nickel Flash Wastewater
4. Contact name and phone number: Jordan Collins, 251-289-3833
5. Date submitted: January 11, 2016
5. Facility type (new, existing or upgrade): Upgrade

AMBIENT CONDITIONS

1. Receiving waterbody: Tombigbee River
2. Width of waterbody at discharge point (m): 255
3. Depth of waterbody at discharge point (m): 6.1
4. Average depth of waterbody at discharge point (m): 5.1

DISCHARGE TYPE:

Submerged endpipe or submerged multiport diffuser? Submerged Multiport Diffuser
Effluent Density (kg/m³): 993.6420

Note: Fill out box A below for endpipe discharges; box B for diffuser discharges.

A. DISCHARGE CONDITIONS FOR SUBMERGED ENDBPIPE DISCHARGES

1. Nearest bank (right or left) to the outfall looking downstream: NA
2. Distance from nearest bank to discharge (m): NA
3. Endpipe diameter (m): NA
4. Contraction ratio (if known): NA
5. Height of discharge above stream bottom (m): NA
6. Effluent flow rate (mgd): NA

B. DISCHARGE CONDITIONS FOR SUBMERGED MULTIPOST DIFFUSERS

NOTE:

Diffuser length is defined as the distance between the first and last diffuser ports.

1. Diffuser length (m): 6.1
2. Nearest bank (right or left) to the outfall looking downstream: 35.05 meters
3. Distance from nearest bank to first diffuser port (m): 35.05 from right bank
4. Total number of ports: 3
5. Diameter of a single port (m): Effective Diameter-0.18
6. Distance between adjacent ports (i.e., port spacing, m): 3
7. Height of ports above stream bottom (m): 1.7
8. Port contraction ratio (if known): _____
9. Diameter of diffuser manifold (m): 0.91
10. Effluent flow rate (mgd): 6.84 average (original CORMIX model flow of 6.3 + new operation flow of 0.54 = 6.84)

SPECIAL REQUIREMENTS

1. Please submit a map displaying the outfall location along with the appropriate latitude/longitude coordinates.
2. Please submit the appropriate engineering plans that depict the outfall configuration.

ADEM Form 455 Supplemental Information

AM/NS Calvert, LLC (AM/NS) intends to install a nickel electroplating process line at its existing Number 2 Continuous Anneal Line that will generate an industrial wastewater discharge. The anticipated average and peak flowrates will be approximately 85.21 cubic meters per hour (m³/hr) [0.54 Million Gallons per Day (MGD)] and 108.21 m³/hr (0.69 MGD), respectively. Industrial wastewater discharge from the electroplating process will be discharged to the Tombigbee River via the Outokumpu Stainless USA, LLC outfall structure, National Pollutant Discharge Elimination System (NPDES) permit number AL0079901. As a result, a permit modification will be required to the existing AM/NS NPDES permit AL0080233 to allow for industrial wastewater discharges from this new process line.

Amec Foster Wheeler Environment & Infrastructure, Inc. (Amec Foster Wheeler) has performed effluent modeling under these modified conditions to determine the instream waste concentration (IWC) with the new discharge. The modeling results are being submitted to the Alabama Department of Environmental Management (ADEM) in support of the application for a new discharge from AM/NS.

ADEM uses a mixing zone referred to as "the zone of initial dilution (ZID)" to determine the IWC when acute WET limitations apply. The ZID is defined by ADEM Administrative Code §335-6-6-.02 as "that area extended from the port openings of a high rate diffuser to the initial edge of the mixing zone where due to great turbulence a constant instream waste concentration (IWC) cannot be determined ... the length of the ZID and thereby the distance to the initial edge of the mixing zone shall not exceed the more stringent of the following requirements:

1. Fifty times the discharge length scale (DLS) in any spatial direction, where the DLS is the square root of the cross sectional area of any discharge outlet,
2. Five times the water depth in any horizontal direction from the discharge outlet, or
3. No more than ten percent of the distance from the edge of the outfall structure to the leading edge of the mixing zone in any spatial direction."

Modeling was performed in accordance with the approved discharge modeling criteria submitted to ADEM on August 29, 2008 using the computer program CORMIX (Version 9.0G). Some input parameters required updates from the 2008 modeling based on the as-built outfall structure (port configuration and submerged port height) and to include the new discharge from

ADEM Form 455 Supplemental Information
January 29, 2016

AM/NS (effluent flowrate, effective port diameter, and ZID). Input parameters for this model run are presented Table 1 and in ADEM Form 455. The IWC was determined when the centerline of the plume reached the end edge of the ZID. The ZID was calculated to be most stringent at 26.6 feet based on Case 1, defined as fifty times the DLS. The results of the modeling indicate that the IWC should be revised to 6.2 percent with the new discharge from AM/NS as presented in Table 2. The input and output modeling files are included as Attachment 1 for reference.

TABLE 1
CORMIX Modeling Input Parameters and Assumptions

Model Component	Input Parameter	Value	Assumptions
Effluent Characterization	Effluent Flowrate	6.84 MGD	Average flowrate is based on original CORMIX model flowrate of 6.3 MGD plus new operation flowrate of 0.54 MGD = 6.84 MGD
	Effluent Temperature	97°F	Maximum design basis for cooling tower blowdown (15°F greater than median of extreme high wet bulb temperatures in Mobile, Alabama). Source: Air Force Combat Climatology Center, 1996.
	Heat Loss Coefficient	0 W/m ² °C	Conservative modeling parameters. Assumes no heat loss to atmosphere.
Ambient Characterization	Average Depth	16.8 ft	Depth determined based up bathymetric data and planned dredging.
	Depth at Discharge	20 ft	Discharge depth to avoid dredged part of channel. CORMIX requires that depth at discharge be less than or equal to diffuser length
	Wind Speed	0 ft/s	Conservative modeling parameter.
	Ambient Steady Flow	1134 cfs	IWC for acute WET modeled using annual 1Q10 from Tombigbee River flow data from the USGS gaging station at the Coffeeville Lock and Dam (USGS Gage 02469761) from 1962 to 2007 and increasing by a factor of 1.09 to reflect the increase in drainage area at the downstream discharge location.
	River Temperature	86°F	Modeled at average ambient summer temperature from USGS Gage 02469762 data from 1969 to 2008.
	Bounded Channel Width	836 ft	Conservative modeling parameter based on bathymetric data.
	River Appearance	Slightly Meandering	Moderately winding channel with non-uniform channel dimensions.
	Manning's Coefficient	0.04	Conservative value for unlined channels. Source: Roberson and Crowe, 1997.
Discharge Characterization	Multi-Port Diffuser (3 Ports)	115 ft from Right Bank	A multi-port diffuser was selected to improve mixing. Location allows for the diffuser to not lie within the middle of the channel, where it could be damaged by river traffic or dredging, and still improve depth.
	Effective Port Diameter	7.2 inches at average discharge, 8.2 inches at peak discharge	Provides an exit velocity of approximately 12.5 ft/s at estimated average discharge flow and 18.3 ft/s at estimated peak discharge flow per port.
	Port Configuration	Unidirectional Parallel Diffuser of Length 20 ft with Vertical Angle 20° and Horizontal Angle 90°	The multi-port diffuser is designed to be parallel to the shoreline. A vertical angle of 20° allows for buoyant discharge to avoid surface interaction and bottom attachment. A horizontal angle of 90° means that the port is perpendicular to the river flow facing opposite the bank, which improves mixing in the channel to reduce boundary attachment.
	Submerged Port Height Above Channel Bottom	5.5 ft	CORMIX modeling requires that the port height be less than one-third the depth at discharge.
Mixing Zone Characterization	IWC Determination	Pollutant Concentration at ZID - 50 times the square root of the discharge port area (26.6 ft)	The IWC is determined by measuring the concentration of a conservative pollutant at the calculated ZID in any spatial direction.

Sources:

Air Force Combat Climatology Center, 1996, Engineering Weather Data. Provided by Scott Stephens of National Oceanic & Atmospheric Administration (NOAA) in pdf via email on 5/12/08.
 Roberson, J.A. and C.T. Crowe, 1997, Engineering and Fluid Mechanics, Sixth Edition, John Wiley and Sons, Inc.

Acronyms:

- Δ - change of
- °C - degrees Celsius
- cfs - cubic feet per second
- °F - degrees Fahrenheit
- ft - feet
- ft/s - feet per second
- ft² - square feet
- IWC - instream waste concentration
- MGD - million gallons per day
- USGS - U.S. Geological Survey
- W/m² - watts per meter squared
- WET - whole effluent toxicity
- ZID - zone of initial dilution

PREPARED/DATE: LSM 01/29/16
 CHECKED/DATE: MLR 01/29/16

TABLE 2
CORMIX IWC Modeling Summary

Model Run	Before Mixing Estimated River Temperature at	Average Discharge Flow	Ambient River Flow	End of Mixing Zone Centerline Location ^B			IWC Concentration
	(°F)	(MGD)	(cfs)	Length (ft)	Width (ft)	Depth (ft)	%
IWC ^A	86	6.84 ^C	1134	5.48	25.10	20.01	6.20

Notes:

- A - IWC determined at Zone of Initial Dilution (ZID) of 26.6 ft.
- B - Due to model step limitations, end of mixing zone dimensions are recorded at the more conservative
- C - Average flowrate is based on original CORMIX model flowrate of 6.3 MGD plus new operation flowrate of 0.54 MGD = 6.84 MGD

Acronyms:

- °C - degrees Celsius
- °F - degrees Fahrenheit
- % - percent of concentration
- cfs - cubic feet per second
- ft - feet
- ft² - square feet
- IWC - instream waste concentration
- MGD - million gallons per day
- USGS - U.S. Geological Survey
- ZID - zone of initial dilution

PREPARED/DATE: LSM 01/29/16

CHECKED/DATE: MLR 01/29/16

Untitled

-0.00	0.14	1.68	3.9	0.260E+02	0.28	2.85	.14406E+00
-0.00	0.16	1.68	4.0	0.247E+02	0.33	2.82	.17306E+00
-0.00	0.18	1.68	4.2	0.236E+02	0.37	2.80	.20359E+00
-0.00	0.20	1.69	4.4	0.227E+02	0.41	2.77	.23555E+00
-0.00	0.22	1.69	4.6	0.219E+02	0.45	2.75	.26889E+00
-0.00	0.24	1.69	4.7	0.211E+02	0.49	2.72	.30352E+00
-0.00	0.26	1.69	4.9	0.205E+02	0.53	2.70	.33941E+00
-0.00	0.28	1.69	5.0	0.199E+02	0.57	2.68	.37649E+00
-0.00	0.30	1.69	5.2	0.193E+02	0.61	2.65	.41472E+00
-0.00	0.33	1.69	5.3	0.188E+02	0.65	2.63	.45408E+00
-0.00	0.35	1.69	5.4	0.184E+02	0.69	2.61	.49451E+00
-0.00	0.37	1.69	5.6	0.179E+02	0.73	2.59	.53599E+00
-0.00	0.39	1.69	5.7	0.175E+02	0.77	2.57	.57849E+00
-0.00	0.41	1.69	5.8	0.172E+02	0.81	2.54	.62198E+00
-0.00	0.43	1.70	5.9	0.168E+02	0.85	2.52	.66643E+00
-0.00	0.45	1.70	6.1	0.165E+02	0.89	2.50	.71183E+00
-0.00	0.47	1.70	6.2	0.162E+02	0.93	2.48	.75815E+00
-0.00	0.49	1.70	6.3	0.159E+02	0.98	2.47	.80537E+00
-0.00	0.51	1.70	6.4	0.157E+02	1.02	2.45	.85347E+00
-0.00	0.53	1.70	6.5	0.154E+02	1.06	2.43	.90244E+00
-0.00	0.55	1.70	6.6	0.152E+02	1.10	2.41	.95225E+00
-0.00	0.57	1.70	6.7	0.149E+02	1.14	2.39	.10029E+01
-0.00	0.59	1.70	6.8	0.147E+02	1.18	2.37	.10544E+01
-0.00	0.61	1.70	6.9	0.145E+02	1.22	2.36	.11066E+01
-0.00	0.63	1.70	7.0	0.143E+02	1.26	2.34	.11597E+01
-0.00	0.65	1.71	7.1	0.141E+02	1.30	2.32	.12135E+01
-0.00	0.67	1.71	7.2	0.139E+02	1.34	2.31	.12681E+01
-0.00	0.69	1.71	7.3	0.137E+02	1.38	2.29	.13234E+01
-0.00	0.71	1.71	7.4	0.136E+02	1.42	2.27	.13795E+01
-0.00	0.73	1.71	7.5	0.134E+02	1.46	2.26	.14363E+01
-0.00	0.75	1.71	7.6	0.132E+02	1.50	2.24	.14939E+01
-0.00	0.77	1.71	7.6	0.131E+02	1.54	2.23	.15521E+01
-0.00	0.79	1.71	7.7	0.129E+02	1.58	2.21	.16110E+01
-0.00	0.81	1.71	7.8	0.128E+02	1.63	2.20	.16707E+01
-0.00	0.83	1.71	7.9	0.127E+02	1.67	2.18	.17310E+01
-0.00	0.85	1.71	8.0	0.125E+02	1.71	2.17	.17920E+01
-0.00	0.87	1.72	8.1	0.124E+02	1.75	2.16	.18537E+01
-0.00	0.89	1.72	8.1	0.123E+02	1.79	2.14	.19160E+01
-0.00	0.91	1.72	8.2	0.122E+02	1.83	2.13	.19789E+01
-0.00	0.93	1.72	8.3	0.120E+02	1.87	2.12	.20426E+01
-0.00	0.96	1.72	8.4	0.119E+02	1.91	2.10	.21068E+01
-0.00	0.98	1.72	8.5	0.118E+02	1.95	2.09	.21717E+01
-0.00	1.00	1.72	8.5	0.117E+02	1.99	2.08	.22372E+01
-0.00	1.02	1.72	8.6	0.116E+02	2.03	2.06	.23033E+01
-0.00	1.04	1.72	8.7	0.115E+02	2.07	2.05	.23701E+01
-0.00	1.06	1.72	8.8	0.114E+02	2.11	2.04	.24374E+01
-0.00	1.08	1.72	8.8	0.113E+02	2.15	2.03	.25053E+01
-0.00	1.10	1.73	8.9	0.112E+02	2.19	2.02	.25739E+01
-0.00	1.12	1.73	9.0	0.111E+02	2.24	2.00	.26430E+01
-0.00	1.14	1.73	9.1	0.110E+02	2.28	1.99	.27127E+01
-0.00	1.16	1.73	9.1	0.109E+02	2.32	1.98	.27829E+01
-0.00	1.18	1.73	9.2	0.109E+02	2.36	1.97	.28538E+01
-0.00	1.20	1.73	9.3	0.108E+02	2.40	1.96	.29252E+01
-0.00	1.22	1.73	9.3	0.107E+02	2.44	1.95	.29972E+01
-0.00	1.24	1.73	9.4	0.106E+02	2.48	1.94	.30697E+01
-0.00	1.26	1.73	9.5	0.105E+02	2.52	1.93	.31428E+01
-0.00	1.28	1.73	9.6	0.105E+02	2.56	1.92	.32165E+01
-0.00	1.30	1.73	9.6	0.104E+02	2.60	1.91	.32906E+01
-0.00	1.32	1.74	9.7	0.103E+02	2.64	1.90	.33654E+01
-0.00	1.34	1.74	9.8	0.102E+02	2.68	1.89	.34406E+01
-0.00	1.36	1.74	9.8	0.102E+02	2.72	1.88	.35164E+01
-0.00	1.38	1.74	9.9	0.101E+02	2.76	1.87	.35927E+01
-0.00	1.40	1.74	10.0	0.100E+02	2.80	1.86	.36696E+01

Untitled

-0.00	1.42	1.74	10.0	0.998E+01	2.84	1.85	.37469E+01
-0.00	1.44	1.74	10.1	0.992E+01	2.89	1.84	.38248E+01
-0.00	1.46	1.74	10.1	0.986E+01	2.93	1.83	.39032E+01
-0.00	1.48	1.74	10.2	0.980E+01	2.97	1.82	.39821E+01
-0.00	1.50	1.74	10.3	0.974E+01	3.01	1.81	.40615E+01
-0.00	1.52	1.74	10.3	0.968E+01	3.05	1.81	.41414E+01
-0.00	1.54	1.75	10.4	0.962E+01	3.09	1.80	.42218E+01
-0.00	1.56	1.75	10.5	0.956E+01	3.13	1.79	.43027E+01
-0.00	1.58	1.75	10.5	0.951E+01	3.17	1.78	.43841E+01
-0.00	1.61	1.75	10.6	0.945E+01	3.21	1.77	.44660E+01
-0.00	1.63	1.75	10.6	0.940E+01	3.25	1.77	.45484E+01
-0.00	1.65	1.75	10.7	0.935E+01	3.29	1.76	.46312E+01
-0.00	1.67	1.75	10.8	0.929E+01	3.33	1.75	.47145E+01
-0.00	1.69	1.75	10.8	0.924E+01	3.37	1.74	.47983E+01
-0.00	1.71	1.75	10.9	0.919E+01	3.41	1.74	.48826E+01
-0.00	1.73	1.75	10.9	0.914E+01	3.45	1.73	.49674E+01
-0.00	1.75	1.76	11.0	0.909E+01	3.50	1.72	.50526E+01
-0.00	1.77	1.76	11.1	0.905E+01	3.54	1.71	.51383E+01
-0.00	1.79	1.76	11.1	0.900E+01	3.58	1.71	.52244E+01
-0.00	1.81	1.76	11.2	0.895E+01	3.62	1.70	.53111E+01
-0.00	1.83	1.76	11.2	0.891E+01	3.66	1.69	.53981E+01
-0.00	1.85	1.76	11.3	0.886E+01	3.70	1.69	.54856E+01
-0.00	1.87	1.76	11.3	0.882E+01	3.74	1.68	.55736E+01
-0.00	1.89	1.76	11.4	0.878E+01	3.78	1.68	.56621E+01
-0.00	1.91	1.76	11.4	0.873E+01	3.82	1.67	.57509E+01
-0.00	1.93	1.76	11.5	0.869E+01	3.86	1.66	.58402E+01
-0.00	1.95	1.76	11.6	0.865E+01	3.90	1.66	.59300E+01
-0.00	1.97	1.77	11.6	0.861E+01	3.94	1.65	.60202E+01
-0.00	1.99	1.77	11.7	0.857E+01	3.98	1.65	.61109E+01
-0.00	2.01	1.77	11.7	0.853E+01	4.02	1.64	.62019E+01
-0.00	2.03	1.77	11.8	0.849E+01	4.06	1.64	.62935E+01
-0.00	2.05	1.77	11.8	0.845E+01	4.10	1.63	.63854E+01
-0.00	2.07	1.77	11.9	0.841E+01	4.15	1.63	.64778E+01
-0.00	2.09	1.77	11.9	0.838E+01	4.19	1.62	.65706E+01
-0.00	2.11	1.77	12.0	0.834E+01	4.23	1.62	.66638E+01
-0.00	2.13	1.77	12.0	0.830E+01	4.27	1.61	.67575E+01
-0.00	2.15	1.77	12.1	0.827E+01	4.31	1.61	.68515E+01
-0.00	2.17	1.77	12.1	0.823E+01	4.35	1.61	.69460E+01
-0.00	2.19	1.78	12.2	0.820E+01	4.39	1.60	.70409E+01
-0.00	2.21	1.78	12.3	0.816E+01	4.43	1.60	.71363E+01
-0.00	2.24	1.78	12.3	0.813E+01	4.47	1.59	.72320E+01
-0.00	2.26	1.78	12.4	0.809E+01	4.51	1.59	.73282E+01
-0.00	2.28	1.78	12.4	0.806E+01	4.55	1.59	.74247E+01
-0.00	2.30	1.78	12.5	0.803E+01	4.59	1.58	.75217E+01
-0.00	2.32	1.78	12.5	0.799E+01	4.63	1.58	.76191E+01
-0.00	2.34	1.78	12.6	0.796E+01	4.67	1.58	.77168E+01
-0.00	2.36	1.78	12.6	0.793E+01	4.71	1.58	.78150E+01
-0.00	2.38	1.78	12.7	0.790E+01	4.75	1.57	.79136E+01
-0.00	2.40	1.78	12.7	0.787E+01	4.80	1.57	.80126E+01
-0.00	2.42	1.79	12.8	0.784E+01	4.84	1.57	.81120E+01
-0.00	2.44	1.79	12.8	0.781E+01	4.88	1.56	.82118E+01
-0.00	2.46	1.79	12.9	0.778E+01	4.92	1.56	.83119E+01
-0.00	2.48	1.79	12.9	0.775E+01	4.96	1.56	.84125E+01
-0.00	2.50	1.79	13.0	0.772E+01	5.00	1.56	.85134E+01
-0.00	2.52	1.79	13.0	0.769E+01	5.04	1.56	.86148E+01
-0.00	2.54	1.79	13.1	0.766E+01	5.08	1.55	.87165E+01
-0.00	2.56	1.79	13.1	0.763E+01	5.12	1.55	.88186E+01
-0.00	2.58	1.79	13.1	0.761E+01	5.16	1.55	.89211E+01
-0.00	2.60	1.79	13.2	0.758E+01	5.20	1.55	.90240E+01
-0.00	2.62	1.79	13.2	0.755E+01	5.24	1.55	.91273E+01
-0.00	2.64	1.80	13.3	0.753E+01	5.28	1.54	.92310E+01
-0.00	2.66	1.80	13.3	0.750E+01	5.32	1.54	.93350E+01
-0.00	2.68	1.80	13.4	0.747E+01	5.36	1.54	.94394E+01

Untitled

-0.00	2.70	1.80	13.4	0.745E+01	5.41	1.54	.95442E+01
-0.00	2.72	1.80	13.5	0.742E+01	5.45	1.54	.96493E+01
-0.00	2.74	1.80	13.5	0.739E+01	5.49	1.54	.97549E+01
-0.00	2.76	1.80	13.6	0.737E+01	5.53	1.54	.98608E+01
-0.00	2.78	1.80	13.6	0.734E+01	5.57	1.54	.99670E+01
-0.00	2.80	1.80	13.7	0.732E+01	5.61	1.54	.10074E+02
-0.00	2.82	1.80	13.7	0.730E+01	5.65	1.53	.10181E+02
-0.00	2.84	1.80	13.8	0.727E+01	5.69	1.53	.10288E+02
-0.00	2.87	1.81	13.8	0.725E+01	5.73	1.53	.10396E+02
-0.00	2.89	1.81	13.8	0.722E+01	5.77	1.53	.10504E+02
-0.00	2.91	1.81	13.9	0.720E+01	5.81	1.53	.10612E+02
-0.00	2.93	1.81	13.9	0.718E+01	5.85	1.53	.10721E+02
-0.00	2.95	1.81	14.0	0.715E+01	5.89	1.53	.10830E+02
-0.00	2.97	1.81	14.0	0.713E+01	5.93	1.53	.10940E+02
-0.00	2.99	1.81	14.1	0.711E+01	5.97	1.53	.11050E+02
-0.00	3.01	1.81	14.1	0.709E+01	6.01	1.53	.11160E+02
-0.00	3.03	1.81	14.2	0.706E+01	6.06	1.53	.11271E+02
-0.00	3.05	1.81	14.2	0.704E+01	6.10	1.53	.11382E+02

Cumulative travel time = 11.3817 sec (0.00 hrs)

Plume centerline may exhibit slight discontinuities in transition to subsequent far-field module.

END OF MOD272: ACCELERATION ZONE OF UNIDIRECTIONAL CROSS-FLOWING DIFFUSER (TEE

BEGIN MOD252: DIFFUSER INDUCED PLUME IN WEAK CROSS-FLOW

Phase 1: Vertically mixed, Phase 2: Re-stratified

Phase 1: The diffuser plume is VERTICALLY FULLY MIXED over the entire layer depth.

This flow region is INSIGNIFICANT in spatial extent and will be by-passed.

Phase 2: The flow has RESTRATIFIED at the beginning of this zone.

Profile definitions:

BV = top-hat thickness, measured vertically

BH = Gaussian 1/e (37%) half-width in horizontal plane normal to trajectory

ZU = upper plume boundary (Z-coordinate)

ZL = lower plume boundary (Z-coordinate)

S = hydrodynamic centerline dilution

C = centerline concentration (includes reaction effects, if any)

TT = Cumulative travel time

X	Y	Z	S	C	BV	BH	TT
-0.00	3.05	6.10	14.2	0.704E+01	6.10	1.56	.11382E+02
0.40	4.20	6.10	14.7	0.680E+01	4.34	2.34	.30773E+02
0.81	5.35	6.10	15.2	0.658E+01	3.77	2.86	.50836E+02
1.23	6.50	6.10	15.7	0.638E+01	3.44	3.33	.71549E+02
1.67	7.65	6.10	16.1	0.620E+01	3.21	3.77	.92891E+02
2.12	8.81	6.10	16.6	0.603E+01	3.04	4.20	.11484E+03
2.58	9.96	6.10	17.0	0.587E+01	2.90	4.61	.13739E+03
3.06	11.11	6.10	17.5	0.573E+01	2.80	5.02	.16052E+03
3.54	12.26	6.10	17.9	0.560E+01	2.71	5.42	.18421E+03
4.04	13.41	6.10	18.3	0.547E+01	2.63	5.81	.20846E+03
4.55	14.57	6.10	18.7	0.535E+01	2.57	6.20	.23325E+03
5.07	15.72	6.10	19.1	0.524E+01	2.51	6.59	.25856E+03
5.60	16.87	6.10	19.4	0.514E+01	2.46	6.98	.28439E+03
6.14	18.02	6.10	19.8	0.504E+01	2.42	7.36	.31073E+03
6.69	19.17	6.10	20.2	0.495E+01	2.38	7.74	.33757E+03

Untitled

7.25	20.32	6.10	20.6	0.487E+01	2.34	8.13	.36490E+03
7.82	21.48	6.10	20.9	0.478E+01	2.31	8.51	.39271E+03
8.40	22.63	6.10	21.3	0.470E+01	2.28	8.89	.42098E+03
8.99	23.78	6.10	21.6	0.463E+01	2.25	9.27	.44973E+03
9.59	24.93	6.10	21.9	0.456E+01	2.23	9.65	.47893E+03
10.20	26.08	6.10	22.3	0.449E+01	2.20	10.03	.50858E+03
10.81	27.23	6.10	22.6	0.443E+01	2.18	10.41	.53867E+03
11.44	28.39	6.10	22.9	0.436E+01	2.16	10.79	.56920E+03
12.07	29.54	6.10	23.2	0.430E+01	2.14	11.17	.60016E+03
12.72	30.69	6.10	23.6	0.425E+01	2.12	11.54	.63155E+03
13.37	31.84	6.10	23.9	0.419E+01	2.11	11.92	.66335E+03
14.03	32.99	6.10	24.2	0.414E+01	2.09	12.30	.69557E+03
14.70	34.14	6.10	24.5	0.409E+01	2.08	12.68	.72820E+03
15.38	35.30	6.10	24.8	0.404E+01	2.06	13.06	.76123E+03
16.06	36.45	6.10	25.1	0.399E+01	2.05	13.44	.79466E+03
16.76	37.60	6.10	25.4	0.394E+01	2.03	13.82	.82848E+03
17.46	38.75	6.10	25.6	0.390E+01	2.02	14.20	.86269E+03
18.17	39.90	6.10	25.9	0.386E+01	2.01	14.58	.89729E+03
18.89	41.06	6.10	26.2	0.381E+01	2.00	14.96	.93226E+03
19.61	42.21	6.10	26.5	0.377E+01	1.99	15.34	.96761E+03
20.34	43.36	6.10	26.8	0.374E+01	1.97	15.72	.10033E+04
21.08	44.51	6.10	27.0	0.370E+01	1.96	16.11	.10394E+04
21.83	45.66	6.10	27.3	0.366E+01	1.95	16.49	.10759E+04
22.59	46.81	6.10	27.6	0.363E+01	1.94	16.87	.11127E+04
23.35	47.97	6.10	27.8	0.359E+01	1.93	17.25	.11499E+04
24.12	49.12	6.10	28.1	0.356E+01	1.92	17.64	.11874E+04
24.90	50.27	6.10	28.4	0.352E+01	1.92	18.02	.12253E+04
25.68	51.42	6.10	28.6	0.349E+01	1.91	18.40	.12635E+04
26.47	52.57	6.10	28.9	0.346E+01	1.90	18.79	.13021E+04
27.27	53.72	6.10	29.1	0.343E+01	1.89	19.17	.13410E+04
28.07	54.88	6.10	29.4	0.340E+01	1.88	19.56	.13803E+04
28.89	56.03	6.10	29.6	0.337E+01	1.87	19.94	.14199E+04
29.70	57.18	6.10	29.9	0.335E+01	1.87	20.33	.14598E+04
30.53	58.33	6.10	30.1	0.332E+01	1.86	20.71	.15001E+04
31.36	59.48	6.10	30.4	0.329E+01	1.85	21.10	.15407E+04
32.20	60.63	6.10	30.6	0.327E+01	1.85	21.49	.15816E+04
33.05	61.79	6.10	30.9	0.324E+01	1.84	21.87	.16228E+04
33.90	62.94	6.10	31.1	0.322E+01	1.83	22.26	.16643E+04
34.76	64.09	6.10	31.3	0.319E+01	1.82	22.65	.17062E+04
35.62	65.24	6.10	31.6	0.317E+01	1.82	23.04	.17484E+04
36.49	66.39	6.10	31.8	0.315E+01	1.81	23.43	.17909E+04
37.37	67.55	6.10	32.0	0.312E+01	1.81	23.81	.18337E+04
38.26	68.70	6.10	32.3	0.310E+01	1.80	24.20	.18768E+04
39.15	69.85	6.10	32.5	0.308E+01	1.79	24.59	.19202E+04
40.04	71.00	6.10	32.7	0.306E+01	1.79	24.98	.19640E+04
40.95	72.15	6.10	32.9	0.304E+01	1.78	25.37	.20080E+04
41.86	73.30	6.10	33.2	0.302E+01	1.78	25.77	.20523E+04
42.77	74.46	6.10	33.4	0.300E+01	1.77	26.16	.20969E+04
43.69	75.61	6.10	33.6	0.298E+01	1.77	26.55	.21418E+04
44.62	76.76	6.10	33.8	0.296E+01	1.76	26.94	.21871E+04
45.55	77.91	6.10	34.0	0.294E+01	1.76	27.33	.22326E+04
46.49	79.06	6.10	34.2	0.292E+01	1.75	27.72	.22784E+04
47.44	80.21	6.10	34.5	0.290E+01	1.74	28.12	.23244E+04
48.39	81.37	6.10	34.7	0.288E+01	1.74	28.51	.23708E+04
49.34	82.52	6.10	34.9	0.287E+01	1.74	28.90	.24175E+04
50.31	83.67	6.10	35.1	0.285E+01	1.73	29.30	.24644E+04
51.28	84.82	6.10	35.3	0.283E+01	1.73	29.69	.25116E+04
52.25	85.97	6.10	35.5	0.282E+01	1.72	30.09	.25591E+04
53.23	87.12	6.10	35.7	0.280E+01	1.72	30.48	.26069E+04
54.22	88.28	6.10	35.9	0.278E+01	1.71	30.88	.26549E+04
55.21	89.43	6.10	36.1	0.277E+01	1.71	31.27	.27033E+04
56.20	90.58	6.10	36.3	0.275E+01	1.70	31.67	.27519E+04
57.21	91.73	6.10	36.5	0.274E+01	1.70	32.07	.28007E+04

Untitled

58.21	92.88	6.10	36.7	0.272E+01	1.69	32.46	.28499E+04
59.23	94.04	6.10	36.9	0.271E+01	1.69	32.86	.28993E+04
60.25	95.19	6.10	37.1	0.269E+01	1.69	33.26	.29490E+04
61.27	96.34	6.10	37.3	0.268E+01	1.68	33.66	.29989E+04
62.30	97.49	6.10	37.5	0.266E+01	1.68	34.05	.30491E+04
63.33	98.64	6.10	37.7	0.265E+01	1.67	34.45	.30996E+04
64.37	99.79	6.10	37.9	0.264E+01	1.67	34.85	.31503E+04
65.42	100.95	6.10	38.1	0.262E+01	1.67	35.25	.32013E+04
66.47	102.10	6.10	38.3	0.261E+01	1.66	35.65	.32526E+04
67.53	103.25	6.10	38.5	0.260E+01	1.66	36.05	.33041E+04
68.59	104.40	6.10	38.7	0.258E+01	1.65	36.45	.33558E+04
69.66	105.55	6.10	38.9	0.257E+01	1.65	36.85	.34079E+04
70.73	106.70	6.10	39.1	0.256E+01	1.65	37.25	.34601E+04
71.81	107.86	6.10	39.3	0.255E+01	1.64	37.65	.35127E+04
72.89	109.01	6.10	39.4	0.254E+01	1.64	38.05	.35654E+04
73.98	110.16	6.10	39.6	0.252E+01	1.64	38.46	.36185E+04
75.07	111.31	6.10	39.8	0.251E+01	1.63	38.86	.36717E+04
76.17	112.46	6.10	40.0	0.250E+01	1.63	39.26	.37253E+04
77.27	113.61	6.10	40.2	0.249E+01	1.63	39.66	.37790E+04
78.38	114.77	6.10	40.4	0.248E+01	1.62	40.07	.38331E+04
79.49	115.92	6.10	40.5	0.247E+01	1.62	40.47	.38873E+04
80.61	117.07	6.10	40.7	0.246E+01	1.62	40.87	.39418E+04
81.73	118.22	6.10	40.9	0.244E+01	1.61	41.28	.39966E+04
82.86	119.37	6.10	41.1	0.243E+01	1.61	41.68	.40516E+04
83.99	120.53	6.10	41.3	0.242E+01	1.61	42.09	.41068E+04
85.13	121.68	6.10	41.4	0.241E+01	1.60	42.49	.41623E+04
86.27	122.83	6.10	41.6	0.240E+01	1.60	42.90	.42180E+04
87.42	123.98	6.10	41.8	0.239E+01	1.60	43.30	.42739E+04
88.57	125.13	6.10	42.0	0.238E+01	1.59	43.71	.43301E+04
89.73	126.28	6.10	42.1	0.237E+01	1.59	44.11	.43865E+04
90.89	127.44	6.10	42.3	0.236E+01	1.59	44.52	.44432E+04
92.06	128.59	6.10	42.5	0.235E+01	1.58	44.93	.45001E+04
93.23	129.74	6.10	42.7	0.234E+01	1.58	45.33	.45572E+04
94.40	130.89	6.10	42.8	0.233E+01	1.58	45.74	.46145E+04
95.58	132.04	6.10	43.0	0.233E+01	1.58	46.15	.46721E+04
96.77	133.19	6.10	43.2	0.232E+01	1.57	46.56	.47299E+04
97.96	134.35	6.10	43.3	0.231E+01	1.57	46.96	.47879E+04
99.15	135.50	6.10	43.5	0.230E+01	1.57	47.37	.48462E+04
100.35	136.65	6.10	43.7	0.229E+01	1.56	47.78	.49047E+04
101.56	137.80	6.10	43.9	0.228E+01	1.56	48.19	.49634E+04
102.77	138.95	6.10	44.0	0.227E+01	1.56	48.60	.50223E+04
103.98	140.10	6.10	44.2	0.226E+01	1.56	49.01	.50815E+04
105.20	141.26	6.10	44.4	0.225E+01	1.55	49.42	.51409E+04
106.42	142.41	6.10	44.5	0.225E+01	1.55	49.83	.52005E+04
107.65	143.56	6.10	44.7	0.224E+01	1.55	50.24	.52603E+04
108.88	144.71	6.10	44.9	0.223E+01	1.54	50.65	.53204E+04
110.12	145.86	6.10	45.0	0.222E+01	1.54	51.06	.53807E+04
111.36	147.02	6.10	45.2	0.221E+01	1.54	51.47	.54412E+04
112.60	148.17	6.10	45.3	0.221E+01	1.54	51.88	.55019E+04
113.85	149.32	6.10	45.5	0.220E+01	1.53	52.29	.55628E+04
115.10	150.47	6.10	45.7	0.219E+01	1.53	52.70	.56239E+04
116.36	151.62	6.10	45.8	0.218E+01	1.53	53.12	.56853E+04
117.63	152.77	6.10	46.0	0.217E+01	1.53	53.53	.57469E+04
118.89	153.93	6.10	46.1	0.217E+01	1.52	53.94	.58087E+04
120.16	155.08	6.10	46.3	0.216E+01	1.52	54.35	.58707E+04
121.44	156.23	6.10	46.5	0.215E+01	1.52	54.77	.59329E+04
122.72	157.38	6.10	46.6	0.214E+01	1.52	55.18	.59953E+04
124.01	158.53	6.10	46.8	0.214E+01	1.51	55.59	.60580E+04
125.29	159.68	6.10	46.9	0.213E+01	1.51	56.01	.61208E+04
126.59	160.84	6.10	47.1	0.212E+01	1.51	56.42	.61839E+04
127.89	161.99	6.10	47.2	0.212E+01	1.51	56.83	.62472E+04
129.19	163.14	6.10	47.4	0.211E+01	1.50	57.25	.63106E+04
130.49	164.29	6.10	47.6	0.210E+01	1.50	57.66	.63743E+04

Untitled

131.80	165.44	6.10	47.7	0.210E+01	1.50	58.08	.64382E+04
133.12	166.59	6.10	47.9	0.209E+01	1.50	58.49	.65023E+04
134.44	167.75	6.10	48.0	0.208E+01	1.50	58.91	.65666E+04
135.76	168.90	6.10	48.2	0.208E+01	1.49	59.33	.66312E+04
137.09	170.05	6.10	48.3	0.207E+01	1.49	59.74	.66959E+04
138.42	171.20	6.10	48.5	0.206E+01	1.49	60.16	.67608E+04
139.76	172.35	6.10	48.6	0.206E+01	1.49	60.57	.68259E+04
141.10	173.51	6.10	48.8	0.205E+01	1.48	60.99	.68913E+04
142.44	174.66	6.10	48.9	0.204E+01	1.48	61.41	.69568E+04
143.79	175.81	6.10	49.1	0.204E+01	1.48	61.83	.70225E+04

Cumulative travel time = 7022.5376 sec (1.95 hrs)

END OF MOD252: DIFFUSER INDUCED PLUME IN WEAK CROSS-FLOW

 ** End of NEAR-FIELD REGION (NFR) **

Bank nearest to plume centerline has changed.
 Nearest bank is now on LEFT.

The initial plume WIDTH values in the next far-field module will be CORRECTED by a factor 1.80 to conserve the mass flux in the far-field! The correction factor is quite large because of the small ambient velocity relative to the strong mixing characteristics of the discharge! This indicates localized RECIRCULATION REGIONS and internal hydraulic JUMPS. Width predictions show discontinuities. Dilution values should be acceptable.

In this design case, the diffuser is located CLOSE TO BANK/SHORE. Some lateral boundary interaction occurs at end of the near-field. This may be related to a design case with a VERY LOW AMBIENT VELOCITY. The dilution values in one or more of the preceding zones may be too high. Carefully evaluate results in near-field and check degree of interaction.

Consider locating outfall further away from bank or shore. In the next prediction module, the plume centerline will be set to follow the bank/shore.

 BEGIN MOD241: BUOYANT AMBIENT SPREADING

Plume is ATTACHED to LEFT bank/shore.
 Plume width is now determined from LEFT bank/shore.

Profile definitions:
 BV = top-hat thickness, measured vertically
 BH = top-hat half-width, measured horizontally in y-direction
 ZU = upper plume boundary (Z-coordinate)
 ZL = lower plume boundary (Z-coordinate)
 S = hydrodynamic average (bulk) dilution
 C = average (bulk) concentration (includes reaction effects, if any)
 TT = Cumulative travel time

Plume stage 2 (bank attached):

	X	Y	Z	S	C	BV	BH	ZU	ZL
TT									
	143.79	219.76	6.10	49.1	0.204E+01	3.82	155.18	6.10	2.28
.70225E+04									
	144.49	219.76	6.10	49.1	0.203E+01	3.80	155.94	6.10	2.29
.70507E+04									
	145.18	219.76	6.10	49.2	0.203E+01	3.79	156.71	6.10	2.31
.70788E+04									
	145.88	219.76	6.10	49.3	0.203E+01	3.77	157.47	6.10	2.32
.71069E+04									

Untitled

146.58	219.76	6.10	49.3	0.203E+01	3.76	158.23	6.10	2.34
.71350E+04								
147.28	219.76	6.10	49.4	0.202E+01	3.75	158.99	6.10	2.35
.71631E+04								
147.98	219.76	6.10	49.4	0.202E+01	3.73	159.75	6.10	2.36
.71912E+04								
148.68	219.76	6.10	49.5	0.202E+01	3.72	160.51	6.10	2.37
.72193E+04								
149.37	219.76	6.10	49.6	0.202E+01	3.71	161.26	6.10	2.39
.72475E+04								
150.07	219.76	6.10	49.6	0.202E+01	3.70	162.02	6.10	2.40
.72756E+04								
150.77	219.76	6.10	49.7	0.201E+01	3.68	162.77	6.10	2.41
.73037E+04								
151.47	219.76	6.10	49.7	0.201E+01	3.67	163.51	6.10	2.43
.73318E+04								
152.17	219.76	6.10	49.8	0.201E+01	3.66	164.26	6.10	2.44
.73599E+04								
152.87	219.76	6.10	49.9	0.201E+01	3.65	165.01	6.10	2.45
.73880E+04								
153.56	219.76	6.10	49.9	0.200E+01	3.63	165.75	6.10	2.46
.74162E+04								
154.26	219.76	6.10	50.0	0.200E+01	3.62	166.49	6.10	2.47
.74443E+04								
154.96	219.76	6.10	50.0	0.200E+01	3.61	167.23	6.10	2.49
.74724E+04								
155.66	219.76	6.10	50.1	0.200E+01	3.60	167.97	6.10	2.50
.75005E+04								
156.36	219.76	6.10	50.1	0.199E+01	3.59	168.71	6.10	2.51
.75286E+04								
157.06	219.76	6.10	50.2	0.199E+01	3.57	169.44	6.10	2.52
.75567E+04								
157.76	219.76	6.10	50.3	0.199E+01	3.56	170.17	6.10	2.53
.75849E+04								
158.45	219.76	6.10	50.3	0.199E+01	3.55	170.91	6.10	2.54
.76130E+04								
159.15	219.76	6.10	50.4	0.199E+01	3.54	171.64	6.10	2.56
.76411E+04								
159.85	219.76	6.10	50.4	0.198E+01	3.53	172.36	6.10	2.57
.76692E+04								
160.55	219.76	6.10	50.5	0.198E+01	3.52	173.09	6.10	2.58
.76973E+04								
161.25	219.76	6.10	50.5	0.198E+01	3.51	173.82	6.10	2.59
.77254E+04								
161.95	219.76	6.10	50.6	0.198E+01	3.50	174.54	6.10	2.60
.77536E+04								
162.64	219.76	6.10	50.6	0.197E+01	3.49	175.26	6.10	2.61
.77817E+04								
163.34	219.76	6.10	50.7	0.197E+01	3.48	175.98	6.10	2.62
.78098E+04								
164.04	219.76	6.10	50.7	0.197E+01	3.46	176.70	6.10	2.63
.78379E+04								
164.74	219.76	6.10	50.8	0.197E+01	3.45	177.42	6.10	2.64
.78660E+04								
165.44	219.76	6.10	50.8	0.197E+01	3.44	178.13	6.10	2.65
.78941E+04								
166.14	219.76	6.10	50.9	0.196E+01	3.43	178.85	6.10	2.66
.79222E+04								
166.83	219.76	6.10	51.0	0.196E+01	3.42	179.56	6.10	2.67
.79504E+04								
167.53	219.76	6.10	51.0	0.196E+01	3.41	180.27	6.10	2.68
.79785E+04								
168.23	219.76	6.10	51.1	0.196E+01	3.40	180.98	6.10	2.69

untitled

.80066E+04	168.93	219.76	6.10	51.1	0.196E+01	3.39	181.69	6.10	2.70
.80347E+04	169.63	219.76	6.10	51.2	0.195E+01	3.38	182.39	6.10	2.71
.80628E+04	170.33	219.76	6.10	51.2	0.195E+01	3.37	183.10	6.10	2.72
.80909E+04	171.02	219.76	6.10	51.3	0.195E+01	3.36	183.80	6.10	2.73
.81191E+04	171.72	219.76	6.10	51.3	0.195E+01	3.36	184.51	6.10	2.74
.81472E+04	172.42	219.76	6.10	51.4	0.195E+01	3.35	185.21	6.10	2.75
.81753E+04	173.12	219.76	6.10	51.4	0.195E+01	3.34	185.91	6.10	2.76
.82034E+04	173.82	219.76	6.10	51.5	0.194E+01	3.33	186.61	6.10	2.77
.82315E+04	174.52	219.76	6.10	51.5	0.194E+01	3.32	187.30	6.10	2.78
.82596E+04	175.22	219.76	6.10	51.6	0.194E+01	3.31	188.00	6.10	2.79
.82878E+04	175.91	219.76	6.10	51.6	0.194E+01	3.30	188.69	6.10	2.80
.83159E+04	176.61	219.76	6.10	51.7	0.194E+01	3.29	189.38	6.10	2.81
.83440E+04	177.31	219.76	6.10	51.7	0.193E+01	3.28	190.08	6.10	2.81
.83721E+04	178.01	219.76	6.10	51.8	0.193E+01	3.27	190.77	6.10	2.82
.84002E+04	178.71	219.76	6.10	51.8	0.193E+01	3.26	191.45	6.10	2.83
.84283E+04	179.41	219.76	6.10	51.9	0.193E+01	3.26	192.14	6.10	2.84
.84565E+04	180.10	219.76	6.10	51.9	0.193E+01	3.25	192.83	6.10	2.85
.84846E+04	180.80	219.76	6.10	51.9	0.192E+01	3.24	193.51	6.10	2.86
.85127E+04	181.50	219.76	6.10	52.0	0.192E+01	3.23	194.20	6.10	2.87
.85408E+04	182.20	219.76	6.10	52.0	0.192E+01	3.22	194.88	6.10	2.87
.85689E+04	182.90	219.76	6.10	52.1	0.192E+01	3.21	195.56	6.10	2.88
.85970E+04	183.60	219.76	6.10	52.1	0.192E+01	3.21	196.24	6.10	2.89
.86251E+04	184.29	219.76	6.10	52.2	0.192E+01	3.20	196.92	6.10	2.90
.86533E+04	184.99	219.76	6.10	52.2	0.191E+01	3.19	197.59	6.10	2.91
.86814E+04	185.69	219.76	6.10	52.3	0.191E+01	3.18	198.27	6.10	2.91
.87095E+04	186.39	219.76	6.10	52.3	0.191E+01	3.17	198.94	6.10	2.92
.87376E+04	187.09	219.76	6.10	52.4	0.191E+01	3.17	199.62	6.10	2.93
.87657E+04	187.79	219.76	6.10	52.4	0.191E+01	3.16	200.29	6.10	2.94
.87938E+04	188.48	219.76	6.10	52.5	0.191E+01	3.15	200.96	6.10	2.95
.88220E+04	189.18	219.76	6.10	52.5	0.190E+01	3.14	201.63	6.10	2.95
.88501E+04	189.88	219.76	6.10	52.6	0.190E+01	3.13	202.30	6.10	2.96
.88782E+04									

Untitled

190.58	219.76	6.10	52.6	0.190E+01	3.13	202.97	6.10	2.97
.89063E+04								
191.28	219.76	6.10	52.6	0.190E+01	3.12	203.63	6.10	2.98
.89344E+04								
191.98	219.76	6.10	52.7	0.190E+01	3.11	204.30	6.10	2.98
.89625E+04								
192.67	219.76	6.10	52.7	0.190E+01	3.10	204.96	6.10	2.99
.89907E+04								
193.37	219.76	6.10	52.8	0.189E+01	3.10	205.63	6.10	3.00
.90188E+04								
194.07	219.76	6.10	52.8	0.189E+01	3.09	206.29	6.10	3.01
.90469E+04								
194.77	219.76	6.10	52.9	0.189E+01	3.08	206.95	6.10	3.01
.90750E+04								
195.47	219.76	6.10	52.9	0.189E+01	3.07	207.61	6.10	3.02
.91031E+04								
196.17	219.76	6.10	53.0	0.189E+01	3.07	208.26	6.10	3.03
.91312E+04								
196.87	219.76	6.10	53.0	0.189E+01	3.06	208.92	6.10	3.04
.91594E+04								
197.56	219.76	6.10	53.0	0.189E+01	3.05	209.58	6.10	3.04
.91875E+04								
198.26	219.76	6.10	53.1	0.188E+01	3.05	210.23	6.10	3.05
.92156E+04								
198.96	219.76	6.10	53.1	0.188E+01	3.04	210.89	6.10	3.06
.92437E+04								
199.66	219.76	6.10	53.2	0.188E+01	3.03	211.54	6.10	3.06
.92718E+04								
200.36	219.76	6.10	53.2	0.188E+01	3.03	212.19	6.10	3.07
.92999E+04								
201.06	219.76	6.10	53.3	0.188E+01	3.02	212.84	6.10	3.08
.93280E+04								
201.75	219.76	6.10	53.3	0.188E+01	3.01	213.49	6.10	3.08
.93562E+04								
202.45	219.76	6.10	53.3	0.187E+01	3.01	214.14	6.10	3.09
.93843E+04								
203.15	219.76	6.10	53.4	0.187E+01	3.00	214.79	6.10	3.10
.94124E+04								
203.85	219.76	6.10	53.4	0.187E+01	2.99	215.43	6.10	3.10
.94405E+04								
204.55	219.76	6.10	53.5	0.187E+01	2.99	216.08	6.10	3.11
.94686E+04								
205.25	219.76	6.10	53.5	0.187E+01	2.98	216.72	6.10	3.12
.94967E+04								
205.94	219.76	6.10	53.5	0.187E+01	2.97	217.37	6.10	3.12
.95249E+04								
206.64	219.76	6.10	53.6	0.187E+01	2.97	218.01	6.10	3.13
.95530E+04								
207.34	219.76	6.10	53.6	0.186E+01	2.96	218.65	6.10	3.14
.95811E+04								
208.04	219.76	6.10	53.7	0.186E+01	2.95	219.29	6.10	3.14
.96092E+04								
208.74	219.76	6.10	53.7	0.186E+01	2.95	219.93	6.10	3.15
.96373E+04								
209.44	219.76	6.10	53.8	0.186E+01	2.94	220.57	6.10	3.16
.96654E+04								
210.13	219.76	6.10	53.8	0.186E+01	2.93	221.20	6.10	3.16
.96936E+04								
210.83	219.76	6.10	53.8	0.186E+01	2.93	221.84	6.10	3.17
.97217E+04								
211.53	219.76	6.10	53.9	0.186E+01	2.92	222.48	6.10	3.17
.97498E+04								
212.23	219.76	6.10	53.9	0.185E+01	2.92	223.11	6.10	3.18

untitled

.97779E+04	212.93	219.76	6.10	54.0	0.185E+01	2.91	223.74	6.10	3.19
.98060E+04	213.63	219.76	6.10	54.0	0.185E+01	2.90	224.38	6.10	3.19
.98341E+04	214.33	219.76	6.10	54.0	0.185E+01	2.90	225.01	6.10	3.20
.98623E+04	215.02	219.76	6.10	54.1	0.185E+01	2.89	225.64	6.10	3.20
.98904E+04	215.72	219.76	6.10	54.1	0.185E+01	2.89	226.27	6.10	3.21
.99185E+04	216.42	219.76	6.10	54.2	0.185E+01	2.88	226.90	6.10	3.22
.99466E+04	217.12	219.76	6.10	54.2	0.185E+01	2.87	227.52	6.10	3.22
.99747E+04	217.82	219.76	6.10	54.2	0.184E+01	2.87	228.15	6.10	3.23
.10003E+05	218.52	219.76	6.10	54.3	0.184E+01	2.86	228.77	6.10	3.23
.10031E+05	219.21	219.76	6.10	54.3	0.184E+01	2.86	229.40	6.10	3.24
.10059E+05	219.91	219.76	6.10	54.4	0.184E+01	2.85	230.02	6.10	3.25
.10087E+05	220.61	219.76	6.10	54.4	0.184E+01	2.85	230.65	6.10	3.25
.10115E+05	221.31	219.76	6.10	54.4	0.184E+01	2.84	231.27	6.10	3.26
.10143E+05	222.01	219.76	6.10	54.5	0.184E+01	2.83	231.89	6.10	3.26
.10172E+05	222.71	219.76	6.10	54.5	0.183E+01	2.83	232.51	6.10	3.27
.10200E+05	223.40	219.76	6.10	54.5	0.183E+01	2.82	233.13	6.10	3.27
.10228E+05	224.10	219.76	6.10	54.6	0.183E+01	2.82	233.75	6.10	3.28
.10256E+05	224.80	219.76	6.10	54.6	0.183E+01	2.81	234.36	6.10	3.28
.10284E+05	225.50	219.76	6.10	54.7	0.183E+01	2.81	234.98	6.10	3.29
.10312E+05	226.20	219.76	6.10	54.7	0.183E+01	2.80	235.60	6.10	3.29
.10340E+05	226.90	219.76	6.10	54.7	0.183E+01	2.80	236.21	6.10	3.30
.10368E+05	227.59	219.76	6.10	54.8	0.183E+01	2.79	236.82	6.10	3.31
.10396E+05	228.29	219.76	6.10	54.8	0.182E+01	2.79	237.44	6.10	3.31
.10425E+05	228.99	219.76	6.10	54.9	0.182E+01	2.78	238.05	6.10	3.32
.10453E+05	229.69	219.76	6.10	54.9	0.182E+01	2.77	238.66	6.10	3.32
.10481E+05	230.39	219.76	6.10	54.9	0.182E+01	2.77	239.27	6.10	3.33
.10509E+05	231.09	219.76	6.10	55.0	0.182E+01	2.76	239.88	6.10	3.33
.10537E+05	231.79	219.76	6.10	55.0	0.182E+01	2.76	240.49	6.10	3.34
.10565E+05	232.48	219.76	6.10	55.0	0.182E+01	2.75	241.10	6.10	3.34
.10593E+05	233.18	219.76	6.10	55.1	0.182E+01	2.75	241.71	6.10	3.35
.10621E+05	233.88	219.76	6.10	55.1	0.181E+01	2.74	242.31	6.10	3.35
.10650E+05									

Untitled								
234.58	219.76	6.10	55.1	0.181E+01	2.74	242.92	6.10	3.36
.10678E+05								
235.28	219.76	6.10	55.2	0.181E+01	2.73	243.52	6.10	3.36
.10706E+05								
235.98	219.76	6.10	55.2	0.181E+01	2.73	244.13	6.10	3.37
.10734E+05								
236.67	219.76	6.10	55.3	0.181E+01	2.72	244.73	6.10	3.37
.10762E+05								
237.37	219.76	6.10	55.3	0.181E+01	2.72	245.33	6.10	3.38
.10790E+05								
238.07	219.76	6.10	55.3	0.181E+01	2.71	245.93	6.10	3.38
.10818E+05								
238.77	219.76	6.10	55.4	0.181E+01	2.71	246.53	6.10	3.39
.10846E+05								
239.47	219.76	6.10	55.4	0.180E+01	2.70	247.13	6.10	3.39
.10874E+05								
240.17	219.76	6.10	55.4	0.180E+01	2.70	247.73	6.10	3.40
.10903E+05								
240.86	219.76	6.10	55.5	0.180E+01	2.70	248.33	6.10	3.40
.10931E+05								
241.56	219.76	6.10	55.5	0.180E+01	2.69	248.93	6.10	3.41
.10959E+05								
242.26	219.76	6.10	55.5	0.180E+01	2.69	249.52	6.10	3.41
.10987E+05								
242.96	219.76	6.10	55.6	0.180E+01	2.68	250.12	6.10	3.41
.11015E+05								
243.66	219.76	6.10	55.6	0.180E+01	2.68	250.71	6.10	3.42
.11043E+05								
244.36	219.76	6.10	55.7	0.180E+01	2.67	251.31	6.10	3.42
.11071E+05								
245.05	219.76	6.10	55.7	0.180E+01	2.67	251.90	6.10	3.43
.11099E+05								
245.75	219.76	6.10	55.7	0.179E+01	2.66	252.49	6.10	3.43
.11127E+05								
246.45	219.76	6.10	55.8	0.179E+01	2.66	253.09	6.10	3.44
.11156E+05								
247.15	219.76	6.10	55.8	0.179E+01	2.65	253.68	6.10	3.44
.11184E+05								
247.85	219.76	6.10	55.8	0.179E+01	2.65	254.27	6.10	3.45
.11212E+05								
248.55	219.76	6.10	55.9	0.179E+01	2.64	254.81	6.10	3.45
.11240E+05								

Cumulative travel time = 11239.9248 sec (3.12 hrs)
 Plume is LATERALLY FULLY MIXED at the end of the buoyant spreading regime.

END OF MOD241: BUOYANT AMBIENT SPREADING

 Bottom coordinate for FAR-FIELD is determined by average depth, ZFB = 0.98m

BEGIN MOD261: PASSIVE AMBIENT MIXING IN UNIFORM AMBIENT

Vertical diffusivity (initial value) = 0.287E-02 m²/s
 Horizontal diffusivity (initial value) = 0.716E-02 m²/s

Profile definitions:

BV = Gaussian s.d.*sqrt(pi/2) (46%) thickness, measured vertically
 = or equal to layer depth, if fully mixed
 BH = Gaussian s.d.*sqrt(pi/2) (46%) half-width,
 measured horizontally in Y-direction
 ZU = upper plume boundary (Z-coordinate)
 ZL = lower plume boundary (Z-coordinate)

Untitled

S = hydrodynamic centerline dilution
 C = centerline concentration (includes reaction effects, if any)
 TT = Cumulative travel time

Plume Stage 2 (bank attached):

	X	Y	Z	S	C	BV	BH	ZU	ZL
TT	248.55	219.76	6.10	55.9	0.179E+01	2.64	254.81	6.10	3.45
.11240E+05	265.18	219.76	6.10	55.9	0.179E+01	2.64	254.81	6.10	3.45
.11909E+05	281.81	219.76	6.10	55.9	0.179E+01	2.64	254.81	6.10	3.45
.12579E+05	298.44	219.76	6.10	55.9	0.179E+01	2.65	254.81	6.10	3.45
.13249E+05	315.07	219.76	6.10	55.9	0.179E+01	2.65	254.81	6.10	3.45
.13918E+05	331.70	219.76	6.10	55.9	0.179E+01	2.65	254.81	6.10	3.45
.14588E+05	348.33	219.76	6.10	55.9	0.179E+01	2.65	254.81	6.10	3.45
.15257E+05	364.96	219.76	6.10	55.9	0.179E+01	2.65	254.81	6.10	3.45
.15927E+05	381.59	219.76	6.10	55.9	0.179E+01	2.65	254.81	6.10	3.45
.16596E+05	398.23	219.76	6.10	55.9	0.179E+01	2.65	254.81	6.10	3.45
.17266E+05	414.86	219.76	6.10	55.9	0.179E+01	2.65	254.81	6.10	3.45
.17935E+05	431.49	219.76	6.10	55.9	0.179E+01	2.65	254.81	6.10	3.45
.18605E+05	448.12	219.76	6.10	55.9	0.179E+01	2.65	254.81	6.10	3.45
.19274E+05	464.75	219.76	6.10	55.9	0.179E+01	2.65	254.81	6.10	3.45
.19944E+05	481.38	219.76	6.10	55.9	0.179E+01	2.65	254.81	6.10	3.45
.20613E+05	498.01	219.76	6.10	55.9	0.179E+01	2.65	254.81	6.10	3.45
.21283E+05	514.64	219.76	6.10	55.9	0.179E+01	2.65	254.81	6.10	3.45
.21952E+05	531.27	219.76	6.10	55.9	0.179E+01	2.65	254.81	6.10	3.45
.22622E+05	547.90	219.76	6.10	55.9	0.179E+01	2.65	254.81	6.10	3.45
.23292E+05	564.54	219.76	6.10	55.9	0.179E+01	2.65	254.81	6.10	3.45
.23961E+05	581.17	219.76	6.10	55.9	0.179E+01	2.65	254.81	6.10	3.45
.24631E+05	597.80	219.76	6.10	55.9	0.179E+01	2.65	254.81	6.10	3.45
.25300E+05	614.43	219.76	6.10	56.0	0.179E+01	2.65	254.81	6.10	3.45
.25970E+05	631.06	219.76	6.10	56.0	0.179E+01	2.65	254.81	6.10	3.45
.26639E+05	647.69	219.76	6.10	56.0	0.179E+01	2.65	254.81	6.10	3.45
.27309E+05	664.32	219.76	6.10	56.0	0.179E+01	2.65	254.81	6.10	3.45
.27978E+05	680.95	219.76	6.10	56.0	0.179E+01	2.65	254.81	6.10	3.45
.28648E+05	697.58	219.76	6.10	56.0	0.179E+01	2.65	254.81	6.10	3.45
.29317E+05									

Untitled

714.21	219.76	6.10	56.0	0.179E+01	2.65	254.81	6.10	3.45
.29987E+05								
730.85	219.76	6.10	56.0	0.179E+01	2.65	254.81	6.10	3.45
.30656E+05								
747.48	219.76	6.10	56.0	0.179E+01	2.65	254.81	6.10	3.45
.31326E+05								
764.11	219.76	6.10	56.0	0.179E+01	2.65	254.81	6.10	3.45
.31995E+05								
780.74	219.76	6.10	56.0	0.179E+01	2.65	254.81	6.10	3.45
.32665E+05								
797.37	219.76	6.10	56.0	0.179E+01	2.65	254.81	6.10	3.45
.33335E+05								
814.00	219.76	6.10	56.0	0.179E+01	2.65	254.81	6.10	3.45
.34004E+05								
830.63	219.76	6.10	56.0	0.179E+01	2.65	254.81	6.10	3.45
.34674E+05								
847.26	219.76	6.10	56.0	0.179E+01	2.65	254.81	6.10	3.44
.35343E+05								
863.89	219.76	6.10	56.0	0.179E+01	2.65	254.81	6.10	3.44
.36013E+05								
880.53	219.76	6.10	56.0	0.179E+01	2.65	254.81	6.10	3.44
.36682E+05								
897.16	219.76	6.10	56.0	0.179E+01	2.65	254.81	6.10	3.44
.37352E+05								
913.79	219.76	6.10	56.0	0.179E+01	2.65	254.81	6.10	3.44
.38021E+05								
930.42	219.76	6.10	56.0	0.178E+01	2.65	254.81	6.10	3.44
.38691E+05								
947.05	219.76	6.10	56.0	0.178E+01	2.65	254.81	6.10	3.44
.39360E+05								
963.68	219.76	6.10	56.0	0.178E+01	2.65	254.81	6.10	3.44
.40030E+05								
980.31	219.76	6.10	56.0	0.178E+01	2.65	254.81	6.10	3.44
.40699E+05								
996.94	219.76	6.10	56.0	0.178E+01	2.65	254.81	6.10	3.44
.41369E+05								
1013.57	219.76	6.10	56.0	0.178E+01	2.65	254.81	6.10	3.44
.42038E+05								
1030.20	219.76	6.10	56.0	0.178E+01	2.65	254.81	6.10	3.44
.42708E+05								
1046.84	219.76	6.10	56.1	0.178E+01	2.65	254.81	6.10	3.44
.43378E+05								
1063.47	219.76	6.10	56.1	0.178E+01	2.65	254.81	6.10	3.44
.44047E+05								
1080.10	219.76	6.10	56.1	0.178E+01	2.65	254.81	6.10	3.44
.44717E+05								
1096.73	219.76	6.10	56.1	0.178E+01	2.65	254.81	6.10	3.44
.45386E+05								
1113.36	219.76	6.10	56.1	0.178E+01	2.65	254.81	6.10	3.44
.46056E+05								
1129.99	219.76	6.10	56.1	0.178E+01	2.65	254.81	6.10	3.44
.46725E+05								
1146.62	219.76	6.10	56.1	0.178E+01	2.65	254.81	6.10	3.44
.47395E+05								
1163.25	219.76	6.10	56.1	0.178E+01	2.65	254.81	6.10	3.44
.48064E+05								
1179.88	219.76	6.10	56.1	0.178E+01	2.65	254.81	6.10	3.44
.48734E+05								
1196.51	219.76	6.10	56.1	0.178E+01	2.66	254.81	6.10	3.44
.49403E+05								
1213.15	219.76	6.10	56.1	0.178E+01	2.66	254.81	6.10	3.44
.50073E+05								
1229.78	219.76	6.10	56.1	0.178E+01	2.66	254.81	6.10	3.44

Untitled

.50742E+05	1246.41	219.76	6.10	56.1	0.178E+01	2.66	254.81	6.10	3.44
.51412E+05	1263.04	219.76	6.10	56.1	0.178E+01	2.66	254.81	6.10	3.44
.52081E+05	1279.67	219.76	6.10	56.1	0.178E+01	2.66	254.81	6.10	3.44
.52751E+05	1296.30	219.76	6.10	56.1	0.178E+01	2.66	254.81	6.10	3.44
.53421E+05	1312.93	219.76	6.10	56.1	0.178E+01	2.66	254.81	6.10	3.44
.54090E+05	1329.56	219.76	6.10	56.1	0.178E+01	2.66	254.81	6.10	3.44
.54760E+05	1346.19	219.76	6.10	56.1	0.178E+01	2.66	254.81	6.10	3.44
.55429E+05	1362.82	219.76	6.10	56.1	0.178E+01	2.66	254.81	6.10	3.44
.56099E+05	1379.46	219.76	6.10	56.1	0.178E+01	2.66	254.81	6.10	3.44
.56768E+05	1396.09	219.76	6.10	56.1	0.178E+01	2.66	254.81	6.10	3.44
.57438E+05	1412.72	219.76	6.10	56.1	0.178E+01	2.66	254.81	6.10	3.44
.58107E+05	1429.35	219.76	6.10	56.1	0.178E+01	2.66	254.81	6.10	3.44
.58777E+05	1445.98	219.76	6.10	56.1	0.178E+01	2.66	254.81	6.10	3.44
.59446E+05	1462.61	219.76	6.10	56.1	0.178E+01	2.66	254.81	6.10	3.44
.60116E+05	1479.24	219.76	6.10	56.2	0.178E+01	2.66	254.81	6.10	3.44
.60785E+05	1495.87	219.76	6.10	56.2	0.178E+01	2.66	254.81	6.10	3.44
.61455E+05	1512.50	219.76	6.10	56.2	0.178E+01	2.66	254.81	6.10	3.44
.62124E+05	1529.13	219.76	6.10	56.2	0.178E+01	2.66	254.81	6.10	3.44
.62794E+05	1545.77	219.76	6.10	56.2	0.178E+01	2.66	254.81	6.10	3.44
.63463E+05	1562.40	219.76	6.10	56.2	0.178E+01	2.66	254.81	6.10	3.44
.64133E+05	1579.03	219.76	6.10	56.2	0.178E+01	2.66	254.81	6.10	3.44
.64803E+05	1595.66	219.76	6.10	56.2	0.178E+01	2.66	254.81	6.10	3.44
.65472E+05	1612.29	219.76	6.10	56.2	0.178E+01	2.66	254.81	6.10	3.44
.66142E+05	1628.92	219.76	6.10	56.2	0.178E+01	2.66	254.81	6.10	3.44
.66811E+05	1645.55	219.76	6.10	56.2	0.178E+01	2.66	254.81	6.10	3.44
.67481E+05	1662.18	219.76	6.10	56.2	0.178E+01	2.66	254.81	6.10	3.44
.68150E+05	1678.81	219.76	6.10	56.2	0.178E+01	2.66	254.81	6.10	3.44
.68820E+05	1695.44	219.76	6.10	56.2	0.178E+01	2.66	254.81	6.10	3.44
.69489E+05	1712.07	219.76	6.10	56.2	0.178E+01	2.66	254.81	6.10	3.44
.70159E+05	1728.71	219.76	6.10	56.2	0.178E+01	2.66	254.81	6.10	3.44
.70828E+05	1745.34	219.76	6.10	56.2	0.178E+01	2.66	254.81	6.10	3.43
.71498E+05									

Untitled

1761.97	219.76	6.10	56.2	0.178E+01	2.66	254.81	6.10	3.43
.72167E+05								
1778.60	219.76	6.10	56.2	0.178E+01	2.66	254.81	6.10	3.43
.72837E+05								
1795.23	219.76	6.10	56.2	0.178E+01	2.66	254.81	6.10	3.43
.73506E+05								
1811.86	219.76	6.10	56.2	0.178E+01	2.66	254.81	6.10	3.43
.74176E+05								
1828.49	219.76	6.10	56.2	0.178E+01	2.66	254.81	6.10	3.43
.74846E+05								
1845.12	219.76	6.10	56.2	0.178E+01	2.66	254.81	6.10	3.43
.75515E+05								
1861.75	219.76	6.10	56.2	0.178E+01	2.66	254.81	6.10	3.43
.76185E+05								
1878.38	219.76	6.10	56.2	0.178E+01	2.66	254.81	6.10	3.43
.76854E+05								
1895.02	219.76	6.10	56.2	0.178E+01	2.66	254.81	6.10	3.43
.77524E+05								
1911.65	219.76	6.10	56.3	0.178E+01	2.66	254.81	6.10	3.43
.78193E+05								
1928.28	219.76	6.10	56.3	0.178E+01	2.66	254.81	6.10	3.43
.78863E+05								
1944.91	219.76	6.10	56.3	0.178E+01	2.66	254.81	6.10	3.43
.79532E+05								
1961.54	219.76	6.10	56.3	0.178E+01	2.66	254.81	6.10	3.43
.80202E+05								
1978.17	219.76	6.10	56.3	0.178E+01	2.66	254.81	6.10	3.43
.80871E+05								
1994.80	219.76	6.10	56.3	0.178E+01	2.66	254.81	6.10	3.43
.81541E+05								
2011.43	219.76	6.10	56.3	0.178E+01	2.66	254.81	6.10	3.43
.82210E+05								
2028.06	219.76	6.10	56.3	0.178E+01	2.66	254.81	6.10	3.43
.82880E+05								
2044.69	219.76	6.10	56.3	0.178E+01	2.66	254.81	6.10	3.43
.83549E+05								
2061.33	219.76	6.10	56.3	0.178E+01	2.66	254.81	6.10	3.43
.84219E+05								
2077.96	219.76	6.10	56.3	0.178E+01	2.66	254.81	6.10	3.43
.84889E+05								
2094.59	219.76	6.10	56.3	0.178E+01	2.66	254.81	6.10	3.43
.85558E+05								
2111.22	219.76	6.10	56.3	0.178E+01	2.67	254.81	6.10	3.43
.86228E+05								
2127.85	219.76	6.10	56.3	0.178E+01	2.67	254.81	6.10	3.43
.86897E+05								
2144.48	219.76	6.10	56.3	0.178E+01	2.67	254.81	6.10	3.43
.87567E+05								
2161.11	219.76	6.10	56.3	0.178E+01	2.67	254.81	6.10	3.43
.88236E+05								
2177.74	219.76	6.10	56.3	0.178E+01	2.67	254.81	6.10	3.43
.88906E+05								
2194.37	219.76	6.10	56.3	0.178E+01	2.67	254.81	6.10	3.43
.89575E+05								
2211.01	219.76	6.10	56.3	0.178E+01	2.67	254.81	6.10	3.43
.90245E+05								
2227.64	219.76	6.10	56.3	0.178E+01	2.67	254.81	6.10	3.43
.90914E+05								
2244.27	219.76	6.10	56.3	0.178E+01	2.67	254.81	6.10	3.43
.91584E+05								
2260.90	219.76	6.10	56.3	0.178E+01	2.67	254.81	6.10	3.43
.92253E+05								
2277.53	219.76	6.10	56.3	0.177E+01	2.67	254.81	6.10	3.43

Untitled

.92923E+05	219.76	6.10	56.3	0.177E+01	2.67	254.81	6.10	3.43
2294.16								
.93592E+05	219.76	6.10	56.3	0.177E+01	2.67	254.81	6.10	3.43
2310.79								
.94262E+05	219.76	6.10	56.4	0.177E+01	2.67	254.81	6.10	3.43
2327.42								
.94932E+05	219.76	6.10	56.4	0.177E+01	2.67	254.81	6.10	3.43
2344.05								
.95601E+05	219.76	6.10	56.4	0.177E+01	2.67	254.81	6.10	3.43
2360.69								
.96271E+05	219.76	6.10	56.4	0.177E+01	2.67	254.81	6.10	3.43
2377.32								
.96940E+05	219.76	6.10	56.4	0.177E+01	2.67	254.81	6.10	3.43
2393.95								
.97610E+05	219.76	6.10	56.4	0.177E+01	2.67	254.81	6.10	3.43
2410.58								
.98279E+05	219.76	6.10	56.4	0.177E+01	2.67	254.81	6.10	3.43
2427.21								
.98949E+05	219.76	6.10	56.4	0.177E+01	2.67	254.81	6.10	3.43
2443.84								
.99618E+05	219.76	6.10	56.4	0.177E+01	2.67	254.81	6.10	3.43
2460.47								
.10029E+06	219.76	6.10	56.4	0.177E+01	2.67	254.81	6.10	3.43
2477.10								
.10096E+06	219.76	6.10	56.4	0.177E+01	2.67	254.81	6.10	3.43
2493.73								
.10163E+06	219.76	6.10	56.4	0.177E+01	2.67	254.81	6.10	3.43
2510.37								
.10230E+06	219.76	6.10	56.4	0.177E+01	2.67	254.81	6.10	3.43
2527.00								
.10297E+06	219.76	6.10	56.4	0.177E+01	2.67	254.81	6.10	3.43
2543.63								
.10364E+06	219.76	6.10	56.4	0.177E+01	2.67	254.81	6.10	3.43
2560.26								
.10431E+06	219.76	6.10	56.4	0.177E+01	2.67	254.81	6.10	3.43
2576.89								
.10497E+06	219.76	6.10	56.4	0.177E+01	2.67	254.81	6.10	3.43
2593.52								
.10564E+06	219.76	6.10	56.4	0.177E+01	2.67	254.81	6.10	3.43
2610.15								
.10631E+06	219.76	6.10	56.4	0.177E+01	2.67	254.81	6.10	3.43
2626.78								
.10698E+06	219.76	6.10	56.4	0.177E+01	2.67	254.81	6.10	3.42
2643.41								
.10765E+06	219.76	6.10	56.4	0.177E+01	2.67	254.81	6.10	3.42
2660.05								
.10832E+06	219.76	6.10	56.4	0.177E+01	2.67	254.81	6.10	3.42
2676.68								
.10899E+06	219.76	6.10	56.4	0.177E+01	2.67	254.81	6.10	3.42
2693.31								
.10966E+06	219.76	6.10	56.4	0.177E+01	2.67	254.81	6.10	3.42
2709.94								
.11033E+06	219.76	6.10	56.4	0.177E+01	2.67	254.81	6.10	3.42
2726.57								
.11100E+06	219.76	6.10	56.4	0.177E+01	2.67	254.81	6.10	3.42
2743.20								
.11167E+06								

Cumulative travel time = 111669.9453 sec (31.02 hrs)

Simulation limit based on maximum specified distance = 2743.20 m.
This is the REGION OF INTEREST limitation.

END OF MOD261: PASSIVE AMBIENT MIXING IN UNIFORM AMBIENT

Untitled

FLUX VARIABLES PER UNIT DIFFUSER LENGTH:

Discharge (volume flux) q0 = 0.049160 m²/s
Momentum flux m0 = 0.186949 m³/s²
Buoyancy flux j0 = 0.000971 m³/s³

DISCHARGE/ENVIRONMENT LENGTH SCALES:

LQ = 0.01 m Lm = 308.67 m LM = 19.01 m
lm' = 99999 m Lb' = 99999 m La = 99999 m
(These refer to the actual discharge/environment length scales.)

NON-DIMENSIONAL PARAMETERS:

Slot Froude number FRO = 238.01
Port/nozzle Froude number FRD0 = 63.28
Velocity ratio R = 154.53

MIXING ZONE / TOXIC DILUTION ZONE / AREA OF INTEREST PARAMETERS:

Toxic discharge = no
Water quality standard specified = no
Regulatory mixing zone = no
Region of interest = 2743.20 m downstream

HYDRODYNAMIC CLASSIFICATION:

| FLOW CLASS = MU3 |

This flow configuration applies to a layer corresponding to the full water depth at the discharge site.
Applicable layer depth = water depth = 6.10 m

Limiting Dilution S = (QA/Q0)+ 1.0 = 108.2

MIXING ZONE EVALUATION (hydrodynamic and regulatory summary):

X-Y-Z Coordinate system:

Origin is located at the BOTTOM below the port/diffuser center:
35.05 m from the right bank/shore.
Number of display steps NSTEP = 150 per module.

NEAR-FIELD REGION (NFR) CONDITIONS :

Note: The NFR is the zone of strong initial mixing. It has no regulatory implication. However, this information may be useful for the discharge designer because the mixing in the NFR is usually sensitive to the discharge design conditions.

Pollutant concentration at NFR edge c = 2.0374 %
Dilution at edge of NFR s = 49.1
NFR Location: x = 143.79 m
(centerline coordinates) y = 175.81 m
z = 6.10 m
NFR plume dimensions: half-width (bh) = 61.83 m
thickness (bv) = 1.48 m

Cumulative travel time: 7022.5342 sec.

Buoyancy assessment:

The effluent density is less than the surrounding ambient water density at the discharge level.
Therefore, the effluent is POSITIVELY BUOYANT and will tend to rise towards the surface.

Near-field instability behavior:

The diffuser flow will experience instabilities with full vertical mixing in the near-field.

Untitled

There may be benthic impact of high pollutant concentrations.

FAR-FIELD MIXING SUMMARY:

Plume becomes vertically fully mixed WITHIN NEAR-FIELD at 0 m downstream, but RE-STRATIFIES LATER and is not mixed in the far-field. Plume becomes laterally fully mixed at 248.55 m downstream.

PLUME BANK CONTACT SUMMARY:

Plume in bounded section contacts nearest bank at 143.79 m downstream. Plume contacts second bank at 248.55 m downstream.

***** TOXIC DILUTION ZONE SUMMARY *****

No TDZ was specified for this simulation.

***** REGULATORY MIXING ZONE SUMMARY *****

No RMZ and no ambient water quality standard have been specified.

***** FINAL DESIGN ADVICE AND COMMENTS *****

CORMIX2 uses the TWO-DIMENSIONAL SLOT DIFFUSER CONCEPT to represent the actual three-dimensional diffuser geometry. Thus, it approximates the details of the merging process of the individual jets from each port/nozzle.

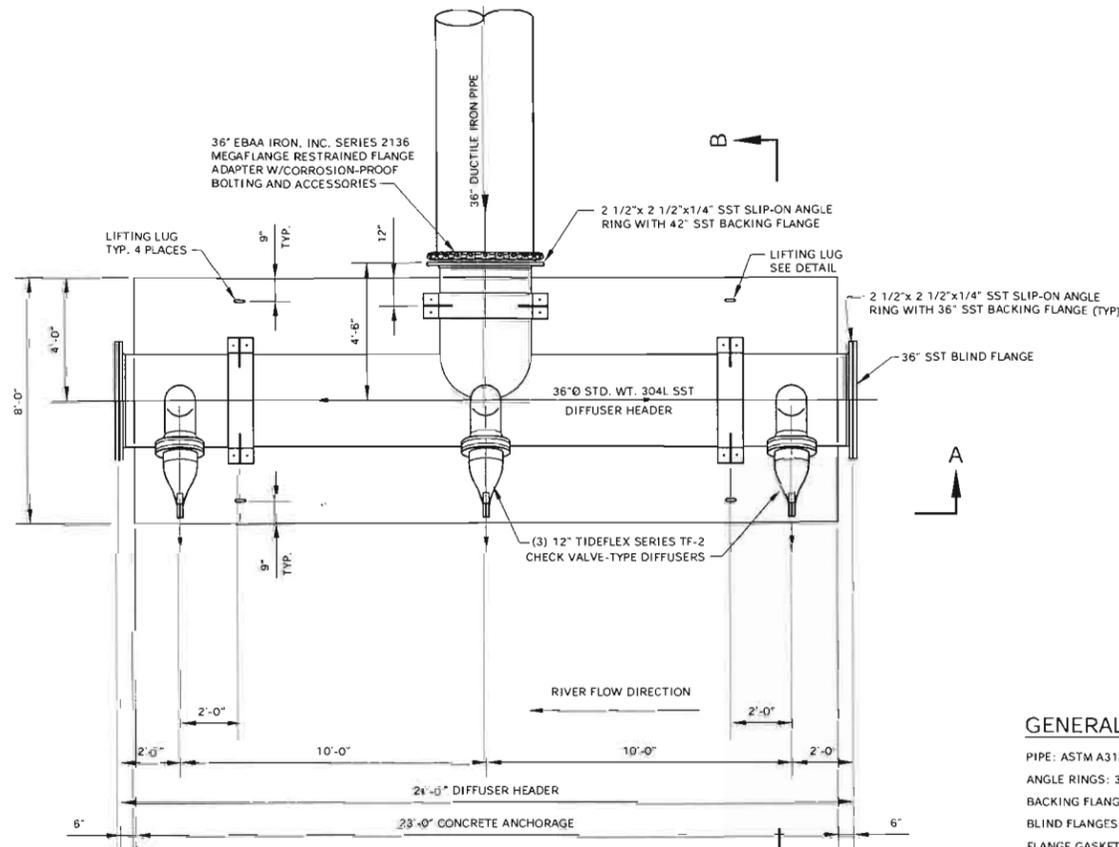
In the present design, the spacing between adjacent ports/nozzles (or riser assemblies) is of the order of, or less than, the local water depth so that the slot diffuser approximation holds well.

Nevertheless, if this is a final design, the user is advised to use a final CORMIX1 (single port discharge) analysis, with discharge data for an individual diffuser jet/plume, in order to compare to the present near-field prediction.

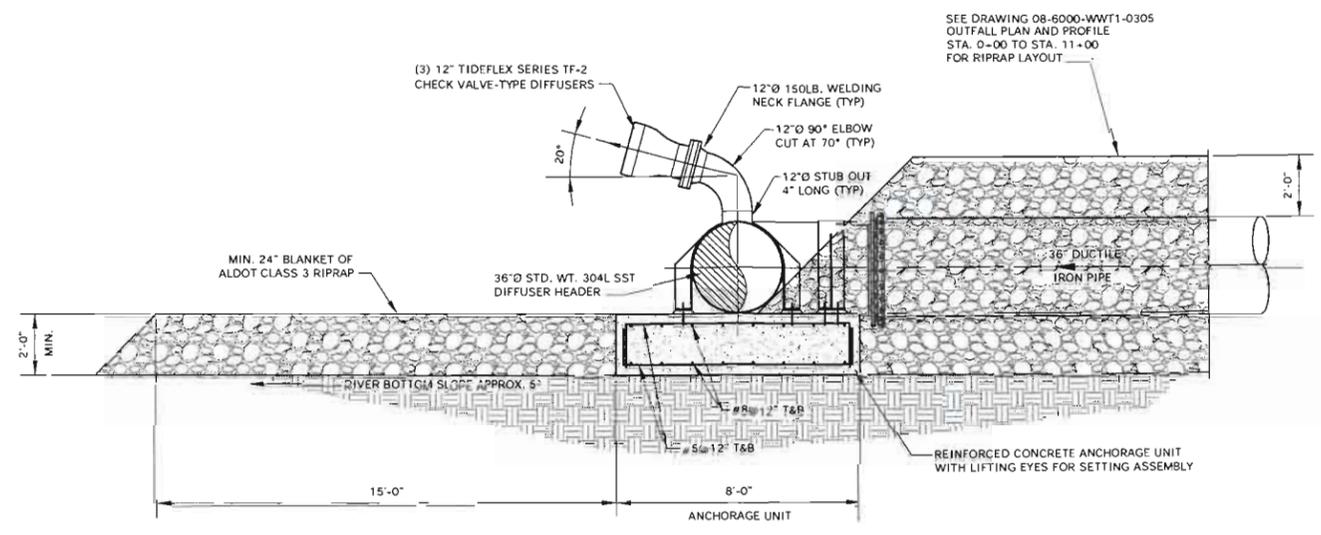
REMINDER: The user must take note that HYDRODYNAMIC MODELING by any known technique is NOT AN EXACT SCIENCE.

Extensive comparison with field and laboratory data has shown that the CORMIX predictions on dilutions and concentrations (with associated plume geometries) are reliable for the majority of cases and are accurate to within about +-50% (standard deviation).

As a further safeguard, CORMIX will not give predictions whenever it judges the design configuration as highly complex and uncertain for prediction.



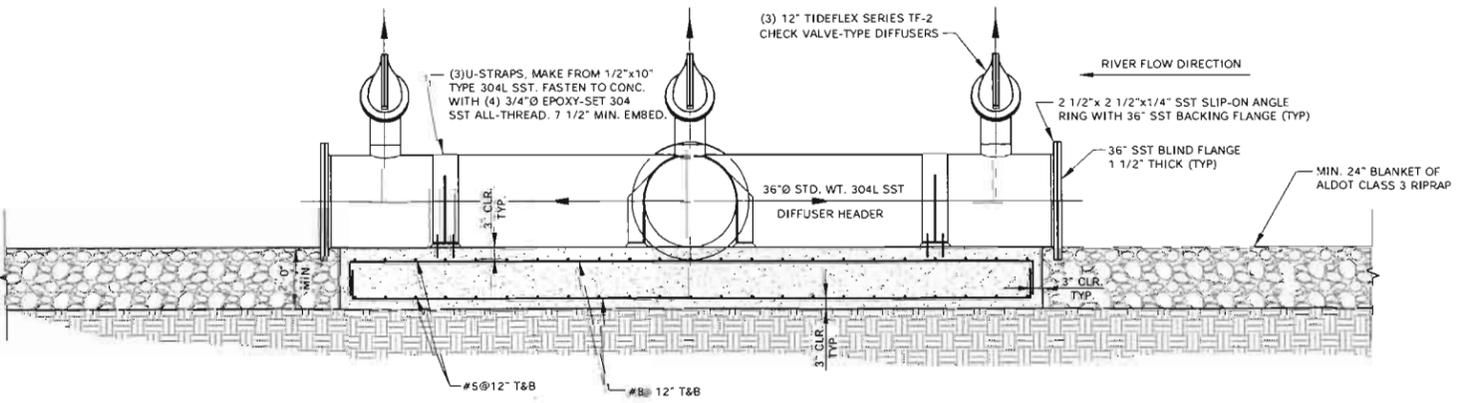
TOP VIEW
SCALE: 3/8" = 1'-0"



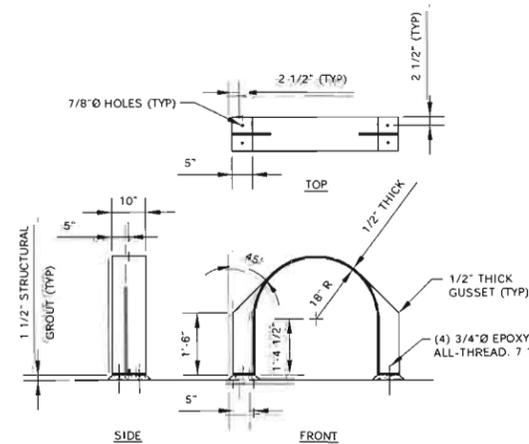
SECTION "B-B"
SCALE: 3/8" = 1'-0"

GENERAL NOTES:

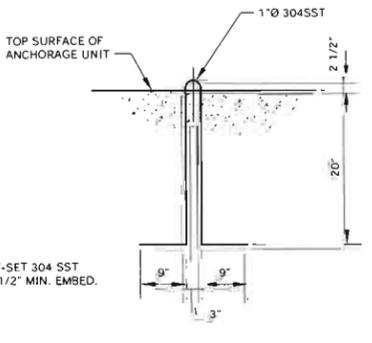
- PIPE: ASTM A312 GRADE 304L STAINLESS STEEL STANDARD WEIGHT
- ANGLE RINGS: 304L STAINLESS STEEL
- BACKING FLANGES: ASTM A240 TYPE 304L, DRILLING ANSI B 16.1, CLASS 125
- BLIND FLANGES: ASTM A240 TYPE 304, DRILLING ANSI B 16.1, CLASS 125
- FLANGE GASKETS: 1/8" THICK SBR RED RUBBER, FULL FACE, 80 SHORE A HARDNESS
- PLATE STEEL: ASTM A240, GRADE 304L STAINLESS STEEL
- BOLTING: ASTM A193 GRADE B7 TEFLON COATED STUDS WITH GRADE 2H TEFLON COATED NUTS
- EPOXY-SET ANCHORS: ASTM F593 (AISI 304) STAINLESS STEEL THREADED ROD, 7/16" MIN. EMBEDMENT, SET WITH HILTI HVA ADHESIVE SYSTEM.
- STRUCTURAL GROUT: SIKA CORPORATION, SIKAGROUT 212
- REINFORCING STEEL: ASTM A615, GRADE 60
- CONCRETE SHALL HAVE A COMPRESSIVE STRENGTH AFTER 28 DAYS OF 4000 PSI TYPE 1 CONCRETE, SEE SPECIFICATIONS
- WELDING: AMERICAN WELDING SOCIETY STRUCTURAL WELDING CODE - STAINLESS STEEL, ANSI/AWS D1.6/D1.6M: 2007



SECTION "A-A"
SCALE: 3/8" = 1'-0"



U-STRAP DETAIL
SCALE: 1/2" = 1'-0"
(3 ASSEMBLIES REQUIRED)



LIFTING LUG DETAIL
NOT TO SCALE
(4 ASSEMBLIES REQUIRED)



thompson ENGINEERING
2970 COTTAGE HILL RD., STE. 190
MOBILE, ALABAMA 36684
TEL: (251) 666-2443
FAX: (251) 666-8422

ThyssenKrupp
ThyssenKrupp Steel USA, LLC
ThyssenKrupp Stainless USA, LLC

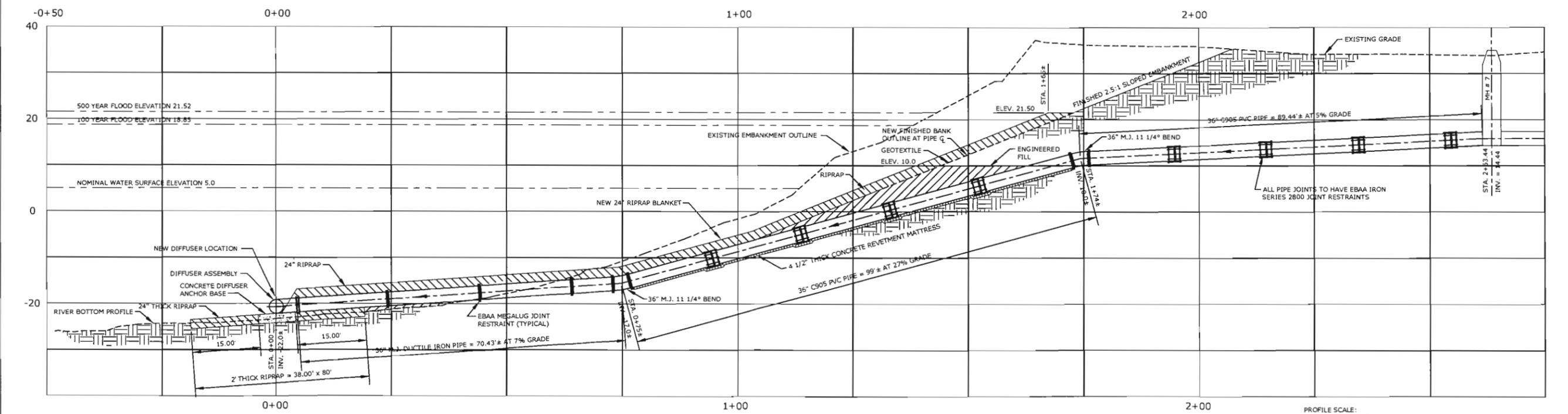
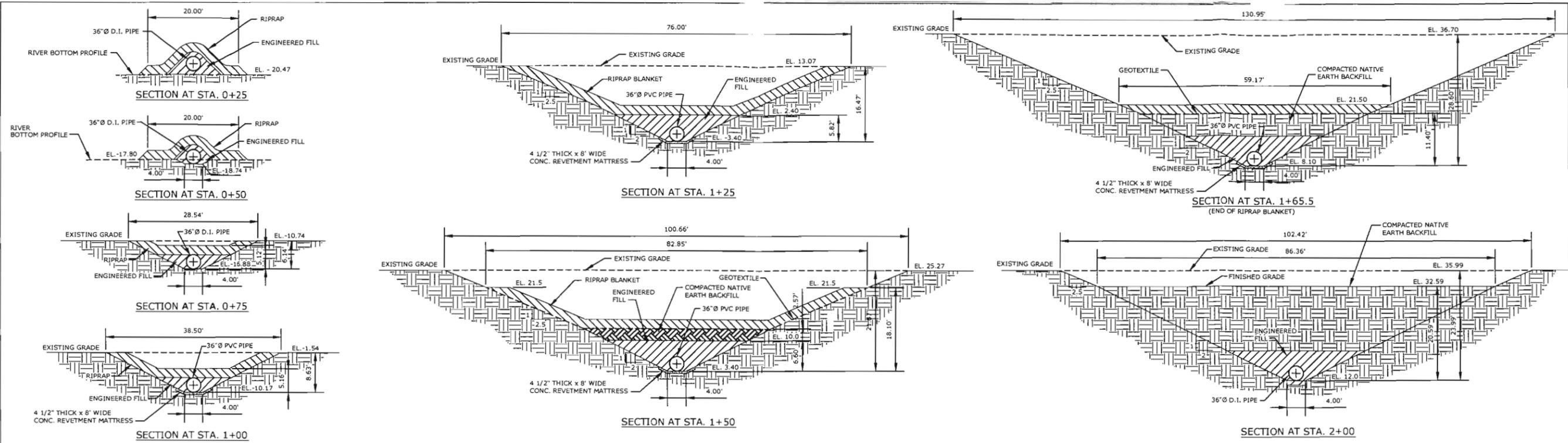
REV. NO.	ISSUE DATE	DESCRIPTION
0	9/22/08	ISSUED FOR CONSTRUCTION
DESIGNED BY	CHECKED BY	REVIEWED BY
J.L.B.	W.B.	K.L.
APPROVED BY	APPROVED BY (OPTIONAL)	
W.B.		

NA Water Systems
TEL: 412-909-6000
250 ARCADE DRIVE
MOON TOWNSHIP, PA 15108-2953
PROCESS SOLUTIONS FOR THE WATER INDUSTRY

VEOLIA WATER
Solutions & Technologies

ALL INFORMATION CONTAINED ON THIS DOCUMENT IS THE PROPERTY OF N.A. WATER SYSTEMS. THE DESIGN CONCEPTS AND INFORMATION CONTAINED HEREIN ARE PROPRIETARY TO N.A. WATER SYSTEMS AND ARE SUBMITTED IN CONFIDENCE. THEY ARE NOT TRANSFERABLE AND MUST BE USED ONLY FOR THE PURPOSE FOR WHICH THE DOCUMENT IS EXPRESSLY SUBMITTED. THEY MUST NOT BE DISCLOSED, REPRODUCED, LOANED OR USED IN ANY OTHER MANNER WITHOUT THE EXPRESS WRITTEN CONSENT OF N.A. WATER SYSTEMS. N.A. WATER SYSTEMS ASSUMES NO RESPONSIBILITY OR LIABILITY FOR THE USE OF THIS DOCUMENT OR THE DESIGN CONCEPTS AND INFORMATION CONTAINED HEREIN FOR ANY OTHER PROJECT, OR IN A MANNER THAT DOES NOT RELATE TO THE FITNESS OR PURPOSE OF THIS DOCUMENT. IN NO EVENT SHALL THIS DOCUMENT OR THE DESIGN CONCEPTS AND INFORMATION CONTAINED HEREIN BE USED IN ANY MANNER DETRIMENTAL TO THE INTEREST OF N.A. WATER SYSTEMS. ALL PATENT RIGHTS ARE RESERVED. ACCEPTANCE OF THE DELIVERY OF THIS DOCUMENT CONSTITUTES AGREEMENT TO THESE TERMS AND CONDITIONS.

SCALE	NOTED	PLOT SCALE
		1:32
TITLE	THYSSENKRUPP STEEL & STAINLESS WATER TREATMENT FACILITIES	
	OUTFALL DIFFUSER ASSEMBLY DETAILS	
CONTRACT NO.	56007868	PROJECT NO. 08-QL-6000-WWT1-0304



PROFILE SCALE:
1" = 10' HORIZONTAL
1" = 10' VERTICAL

thompson ENGINEERING
2070 COTTAGE HILL RD., STE. 100
MOBILE, ALABAMA 36688
TEL: (251) 886-2443
FAX: (251) 886-8422

ThyssenKrupp
ThyssenKrupp Steel USA, LLC
ThyssenKrupp Stainless USA, LLC

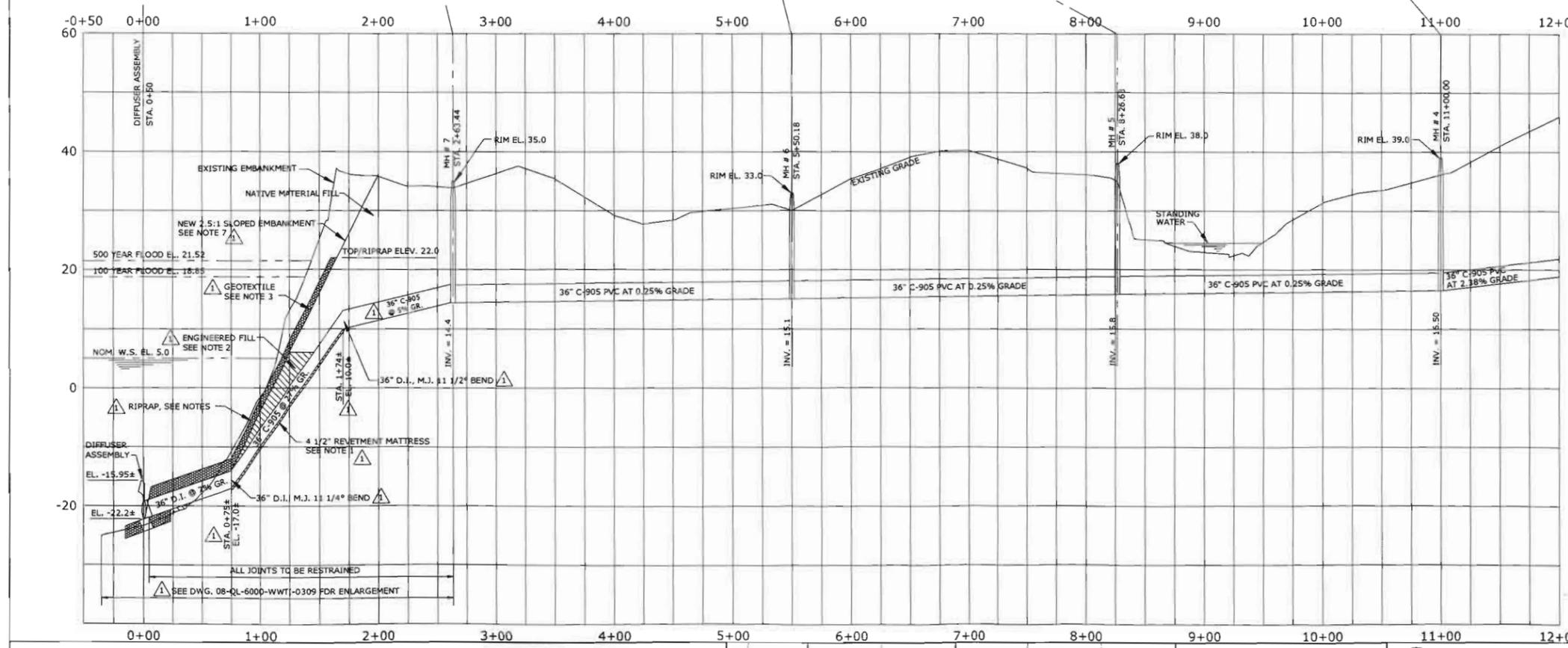
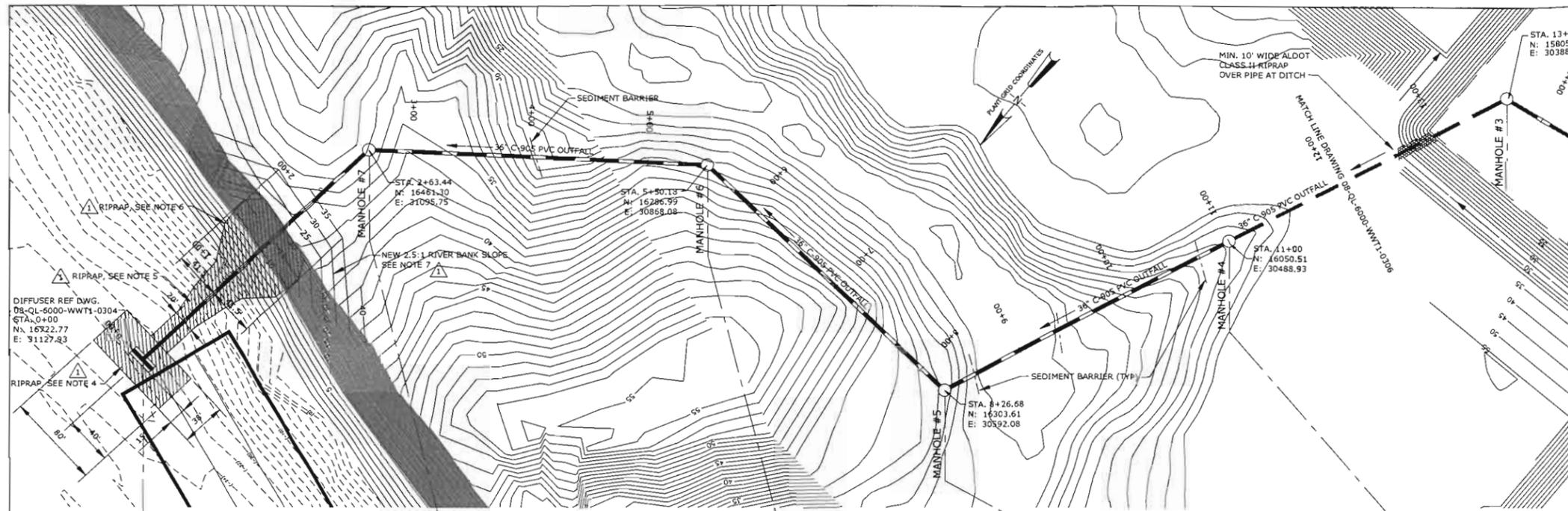
REV. NO.	ISSUE DATE	DESCRIPTION	DESIGNED BY	CHECKED BY	REVIEWED BY	APPROVED BY	APPROVED BY (OPTIONAL)
1	4/16/10		RJK	KH	DF		
0	2/09/09		JLB	AS	WB		

FOR RECORD
ISSUED FOR CONSTRUCTION

NA Water Systems
TEL: 412-806-8000
250 ARDEN DRIVE
MOON TOWNSHIP, PA 15108-2793
PROCESS SOLUTIONS FOR THE WATER INDUSTRY

VEOLIA
Solutions & Technologies

SCALE NOTED PLOT SCALE 1:10
TITLE
THYSSENKRUPP STEEL & STAINLESS
WATER TREATMENT FACILITIES
OUTFALL DIFFUSER PROFILE
STA. 0+00 TO STA. 2+75
CONTRACT NO. 56007868
SHEET NO. 08-QL-6000-WWT1-0309
E 802



- NOTES:**
1. PIPE BEDDING MATERIAL IN THIS AREA SHALL BE 4 1/2" THICK CONCRETE REVETMENT MATTRESS 8' WIDE x 20' LONG PLACED BENEATH THE 36" PVC PIPE A DISTANCE OF APPROXIMATELY 100 FEET. REVETMENT MATTRESS SHALL BE AS MANUFACTURED BY SUBMAR INC. OR EQUAL.
 2. ENGINEERED FILL IS TO BE USED WHEN BACKFILLING THE PIPE TRENCH ABOVE THE PVC PIPING UP TO AN ELEVATION 2 FEET ABOVE THE WATER SURFACE AT TIME OF CONSTRUCTION. FILL SHALL BE CRUSHED STONE, GRAVEL, OR CRUSHED GRAVEL IN ACCORDANCE WITH ALDOT STANDARD SPECIFICATION 801.03. AT LEAST 80% BY WEIGHT (MASS) OF THE BLENDED AGGREGATE RETAINED ON THE NO. 4 (4.75mm) SIEVE SHALL HAVE AT LEAST TWO FULLY FRACTURED FACES MEASURED IN ACCORDANCE WITH ASTM D 5821.
 3. A GEOTEXTILE FILTER FABRIC SHALL BE PLACED BENEATH THE 24" THICK RIPRAP BLANKET PLACED OVER THE OUTFALL PIPE AND NEW 2.5:1 RIVER BANK SLOPE. REFERENCE SPECIFICATION 02272. GEOTEXTILE FABRIC TO BE PLACED ABOVE THE WATER SURFACE.
 4. CONTRACTOR SHALL DRAG RIVER BOTTOM TO REMOVE DEBRIS PRIOR TO SETTING DIFFUSER ASSEMBLY AND 24" MINIMUM THICKNESS PRE-APPROVED RIPRAP BLANKET.
 5. CONTRACTOR SHALL PLACE A MINIMUM 24" THICKNESS OF PRE-APPROVED RIPRAP BLANKET OVER THE 36" OUTFALL PIPING AND TRENCH EXCAVATION. THE RIPRAP SHALL EXTEND THE FULL WIDTH OF THE EXCAVATION OR A MINIMUM OF 10 FEET EITHER SIDE OF THE CENTER OF THE 36" OUTFALL PIPE, WHICHEVER IS GREATEST. THE RIPRAP SHALL EXTEND FROM THE DIFFUSER TO ELEVATION 22.0.
 6. CONTRACTOR SHALL PLACE A MINIMUM 24" THICKNESS OF PRE-APPROVED RIPRAP BLANKET OVER THE 36" OUTFALL PIPING AND NEW 2.5:1 RIVER BANK SLOPE. THE RIPRAP SHALL EXTEND FROM ELEVATION 0.0 TO ELEVATION 22.0. THE RIPRAP SHALL BE PLACED A DISTANCE OF 10 FEET EACH SIDE OF THE CENTER OF THE 36" OUTFALL PIPE.
 7. THE CONTRACTOR SHALL RE-CONTOUR THE RIVER BANK, A DISTANCE OF APPROX. 40 FEET EACH SIDE OF THE OUTFALL PIPE, AT A 2.5:1 SLOPE FROM APPROX. EL. -17.0 TO THE TOP OF THE RIVER BANK. SIDE SLOPES SHALL BE MADE AT 2.5:1 AND BLEND INTO EXISTING GRADES.
 8. ALL GROUND SURFACE AREAS DISTURBED BY THIS CONSTRUCTION, NOT OTHERWISE TREATED BY RIPRAP, PAVING, STONE, ETC., SHALL RECEIVE PERMANENT SEEDING, MULCHING AND TOPSOIL.
 9. SEE DRAWING 08-6000-WWT1-0331 FOR ADDITIONAL EROSION CONTROL NOTES.

REFERENCE DRAWING:

- 08-6000-WWT1-0301, WELL WATER AND OUTFALL PIPING PLAN
- 08-6000-WWT1-0303, OUTFALL MANHOLES AND MISCELLANEOUS DETAILS
- 08-6000-WWT1-0304, OUTFALL DIFFUSER ASSEMBLY DETAILS
- 08-6000-WWT1-0306, OUTFALL PLAN AND PROFILE STA. 12+00 TO STA. 20+73

SCALE: 1" = 50' HORIZONTAL
1" = 10' VERTICAL

thompson
ENGINEERING

2070 COTTAGE HILL RD., STE. 190
MOBILE, ALABAMA 36688
TEL: (251) 888-2443
FAX: (251) 888-6422

ThyssenKrupp
ThyssenKrupp Steel USA, LLC
ThyssenKrupp Stainless USA, LLC

REV NO	ISSUE DATE	DESIGN/DRAWING	CHECKED BY	REVIEWED BY	APPROVED BY	APPROVED BY (OPTIONAL)	DESCRIPTION
2	4/16/10	R.S.K.	KH		DF		FOR RECORD
1	2/09/09	J.L.B.		K.L.	W.G		REVISED STA. 0+00 TO STA. 2+64.44
0	9/22/08	WG	J.L.B.	K.L.	W.G		ISSUED FOR CONSTRUCTION

NA Water Systems

TEL 412-809-8000
250 AIRBORNE DRIVE
MOON TOWNSHIP, PA 15108-2793
PROCESS SOLUTIONS FOR THE WATER INDUSTRY

VEOLIA
WATER

Water & Technology

SCALE NOTED 1:1

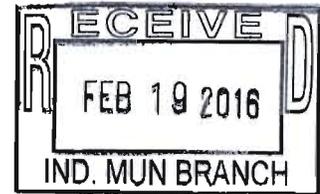
THIS DRAWING IS THE PROPERTY OF THYSENKRUPP STEEL & STAINLESS WATER TREATMENT FACILITIES

OUTFALL PLAN AND PROFILE
STA. 0+00 TO STA. 12+00

CONTRACT NO. 56007868 IWC 08-QL-6000-WWT1-0305 B03

AM/NS CALVERT

Ms. Latoya Hall
Water Division, NPDES Permit Branch
Alabama Department of Environmental Management
1400 Coliseum Boulevard
Montgomery, AL 36110



2/15/2016

Subject: Modification Request
NPDES Permit AL0080233
AM/NS Calvert, LLC

Dear Ms. Hall

AM/NS Calvert, LLC (AM/NS) is the permit holder of the National Pollutant Discharge Elimination System (NPDES) permit AL0080233, which is set to expire July 31, 2020. AM/NS is submitting a NPDES permit modification for industrial wastewater discharges from an acid cleaning and nickel plating section that will be installed at the existing No. 2 Continuous Annealing Line during 2016. The wastewater generated from this process will be treated at a dedicated wastewater treatment system that will be constructed as part of the installation of the updated process line. The effluent of the new wastewater treatment plant will be discharged to the Tombigbee River via an existing diffuser that also receives treated effluent from the Outokumpu wastewater treatment plant.

AM/NS has chosen to mark yes for question C on EPA Form 1 and has not provided a Form 2C because the new process and treatment plant are not yet in operation. A Form 2C with the actual sample results from the treated effluent cannot be provided at this time. Once the upgraded production process and new wastewater treatment plant have achieved a steady-state operation, a supplementary Form 2C can be provided.

AM/NS Calvert
P. O. Box 456
Calvert, Alabama 36513

T: +1 (251) 289-3000
www.arcelormittal.com

A joint venture between ArcelorMittal and
Nippon Steel & Sumitomo Metal Corporation



Per previous discussions between AM/NS and the Alabama Department of Environmental Management (ADEM), AM/NS expects the Water Quality-Based Effluent Limits will not be imposed at this time for the proposed discharge. In addition, it is expected that permit limits contained within the requested modification for the new process will be imposed based solely on the Technology-Based Effluent Limits contained in 40 CFR 433.

Your timely review of the attached permit application and issuance of a draft permit modification is requested. Feel free to contact me at 251-289-3833 if you have any questions regarding the enclosed documents.

Best regards



Jordan Collins
Team Manager, Environmental
AM/NS Calvert

Cc: Douglas Bley, ArcelorMittal USA
Scott Ramsey, ADEM